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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 5416/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Rio Tinto Exploration Pty Ltd**

1.3. Property details

Property: *Iron Ore (Yandicoogina) Agreement Act 1996*, Mining Lease 274SA (AM 70/274)
Local Government Area: Shire of East Pilbara
Colloquial name: Yandi Braid Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 14 February 2013

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

Beard vegetation associations have been mapped for the whole of Western Australia and are useful to look at vegetation in a regional context. The following Beard vegetation associations are located within the application area (GIS Database):

29: Sparse low woodland; mulga, discontinuous in scattered groups; and

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

The application area was covered by a level 1 flora and vegetation assessment by Western Botanical (Western Botanical, 2012). The field survey was conducted between the 30 October 2012 and 8 November 2012 and focused on taxa with conservation significance (Western Botanical, 2012). Vegetation associations were described for the proposed drill pads but not for the access tracks in between each proposed drill pad. According to Western Botanical (2012), the following nine vegetation associations were identified within the application area:

1. AcApCcCs: *Acacia citrinoviridis* and *Acacia pruinocarpa*, over *Cenchrus ciliaris* and *C. setiger*, on Drainage Plain.

2. ApnMSTsh: *Acacia paraneura*, over Mixed Scrub, over *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) on Drainage Plain.

3. ChMATe: *Corymbia hamersleyana*, over Mixed *Acacias,* over *Triodia epactia* on Flat Plain.

4. ChMATsh: *Corymbia hamersleyana*, over Mixed *Acacias*, over *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835).

5. EcMACcCs: *Eucalyptus camaldulensis*, over Mixed *Acacias*, over *Cenchrus ciliaris* and *C. setiger*, on Drainage Plain.

6. EgMATeTs: *Eucalyptus gamophylla*, over Mixed *Acacias,* over *Triodia epactia* and T. schinzii, on Flat Plain.

7. ElAbTsh: *Eucalyptus leucophloia*, over *Acacia bivenosa*, over *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835), on Rocky Hillslope.

8. MAMHMG: Mixed *Acacias*, over Mixed Herbs, over Mixed Grasses, on Burnt Plains.

9. MAMSTb: Mixed *Acacias*, over Mixed Scrub, over *Triodia basedowii*, on Flat Plain.

Clearing Description

Rio Tinto Exploration Pty Limited (RTX) has applied to clear 60 hectares within an application area of approximately 212.5 hectares (GIS Database). The application area is located approximately 75 kilometres north west of Newman (GIS Database).

The purpose of the application is to construct drill pads and access tracks for iron ore drilling. The application area consists of numerous drill pads (approximately 449), access tracks and four potential campsite locations. The width

of the proposed access tracks is four metres and the dimensions of the proposed drill pads are 25 metres by 25 metres. 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

Vegetation condition was determined by Western Botanical (2012).

Western Botanical (2012) notes that due to low seasonal rainfall, the annual flora species were poorly represented and could not be definitively assessed. Additionally, the survey should not be treated as an exhaustive inventory of the vascular flora due to the targeted nature of the survey (Western Botanical, 2012).

The flora survey covered an area of 50 metres by 50 metres around each proposed drill hole, 100 metres by 100 metres around the proposed campsites and a 30 metre corridor along the proposed access tracks (RTX, 2013). This buffer zone allows for small deviations around landform obstacles and trees (Western Botanical, 2012).

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

Nine vegetation associations were identified within the application area (Western Botanical, 2012). The vegetation was in an 'excellent' to 'very good' condition. Previous drill programs have been conducted in the area and existing roads, tracks and drill pads are present (Western Botanical, 2012). RTX (2013) have utilised these where possible.

A total of 180 flora taxa representing 37 families and 91 genera were recorded within the application area (Western Botanical, 2012). Five weed species were identified including Kapok Bush (*Aerva javanica*), Mexican Poppy (*Argemone ochroleuca* subsp. *ochroleuca)*, Buffel Grass (*Cenchrus ciliaris*), Birdwood Grass (*Cenchrus setiger*) and Mimosa Bush (*Vachellia farnesiana*). According to Western Botanical (2012), Mexican Poppy is considered to be a P1 Declared Plant in the majority of the state, and a P2 Declared Plant in the East Pilbara under the *Agriculture and Related Resources Protection Act 1976*. This weed was found within and along the edge of Weeli Wolli Creek. Buffel Grass and Birdwood Grass are common in the area and all vegetation had some level of invasion by these weed species (Western Botanical, 2012). Potential impacts from weeds as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

Available databases show no Threatened Flora or Threatened Ecological Communities have been recorded within the application area (GIS Database). The application area is located within the buffer of the Priority 1 Fortescue Marsh Priority Ecological Communities (PECs) (GIS Database). However, the proposed clearing is located approximately 27 kilometres south of the marsh and is therefore unlikely to impact the Fortescue Marsh.

No Threatened Flora species were recorded during the vegetation survey of the application area (Western Botanical, 2012). One Priority 4 Flora species, *Goodenia nuda*, was recorded at three locations totalling 23 individuals within the application area (Western Botanical, 2012). Nine individuals were recorded on proposed drill pad 249, four on drill pad 250, and ten along the south eastern access track from proposed drill pad 249 to 141. This species is known to occur along lower hill slopes in the East Pilbara (Western Botanical, 2012) and is known from 56 records over a widespread area (Western Australian Herbarium, 2013). RTX (2013) will atttempt to avoid *Goodenia nuda* by utilising the buffer zone within the application area. Other flora surveys have also been conducted in the area and a review of one undertaken for a nearby clearing permit shows no conservation significant flora species were detected over the majority of the application area.

According to Naturemap, 33 mammal, 106 bird, four amphibian, one fish, 19 invertebrate, and 104 reptile species have been recorded within a 20 kilometre radius of the centre of the application area (DEC, 2013). This indicates a high faunal diversity which is likely to be associated with Weeli Wolli Creek, a regionally significant ephemeral watercourse that occurs in close proximity to the application area. Riparian vegetation associated with Weeli Wolli Creek is therefore considered important fauna habitat in the area. Seventeen of the 449 proposed drill pads have been described as riparian vegetation associated with Weeli Wolli Creek (Western Botanical, 2013). According to RTX (2013), these areas are sparsely vegetated. This is supported by aerial imagery which also shows the application area has avoided the more dense riparian vegetation associated with Weeli Wolli Creek (GIS Database).

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

Methodology

DEC (2013)
RTX (2013)
Western Australian Herbarium (2013)
Western Botanical (2012)
Western Botanical (2013)
GIS Database:
- Threatened and Priority Flora

- Threatened Ecological Sites Buffered
- Weeli Wolli 50cm Orthomosaic

(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

A fauna survey has not been conducted over the application area, however, observations of conservation significant fauna were noted during the vegetation survey (Western Botanical, 2012).

Based on the vegetation survey, the application area consists of drainage plains, flat plains and rocky hillslope (Western Botanical, 2012). Available databases indicate the application area is generally located in flat areas between hills/ridges but does extend onto surrounding slopes in some locations (GIS Database). According to RTX (2013), there are no caves or crevices within the application area, however, there might be some outcrops or overhangs. RTX (2013) will attempt to avoid these by utilising the buffer zone that has been incorporated into the application area.

The application area is located along Weeli Wolli Creek and comes within 20 to 50 metres of the creek at approximately six locations (GIS Database). Riparian vegetation associated with Weeli Wolli Creek was identified at 17 of the proposed drill pad locations and is also likely to be present along the proposed access tracks associated with these drill pads (Western Botanical, 2013). This riparian vegetation is described as '*Eucalyptus camaldulensis* Open Tall Woodland (Trees >30 metres) (2-10%), over *Acacia pruinocarpa, Acacia citrinoviridis, Acacia tumida* var. *tumida and Acacia pyrifolia* var. *pyrifolia* Open Scrub (Shrubs >2 metres) (2-10%), over **Cenchrus ciliaris* and **Cenchrus setiger* Tall Grass (30-70%), on open drainage' (Western Botanical, 2013). According to RTX (2013), the 17 proposed drill pads are sparsely vegetated. This is supported by aerial imagery which also shows the application area has avoided the more dense riparian vegetation associated with Weeli Wolli Creek (GIS Database). Large trees within the riparian vegetation may provide roosting and nesting sites for birds, including conservation significant species such as the Grey Falcon (*Falco hypoleucos)* (Schedule 1) and Peregrine Falcon (*Falco peregrinus*) (Schedule 4). Potential impacts to large riparian trees may be minimised by the implementation of a condition that restricts clearing of habitat trees.

Two Western Pebble-mound Mouse mounds were recorded during the vegetation survey, one at proposed drill pad 436 and one 50 metres west of proposed drill pad 440 (Western Botanical, 2012). This species occurs on gentle slopes with suitable sized stones for constructing pebble mounds and is relatively widespread in the Pilbara. Measures will be taken to avoid these mounds including a five metre buffer around the mounds (RTX, 2013; Western Botanical, 2012).

A review of a fauna survey conducted for a nearby clearing permit reveals several conservation significant fauna have been recorded in the area. These include the Mulgara (either *Dasycercus cristicauda* (Vulnerable; Schedule 1) or *Dasycercus blythi* (Priority 4)), Pilbara Olive Python (*Liasis olivaceus barroni*) (Vulnerable; Schedule 1), Eastern Osprey (*Pandion cristatus*) (Migratory), Rainbow Bee-eater (*Merops ornatus*) (Marine; Migratory under *EPBC Act*; Schedule 3), Blindsnake (*Ramphotyphlops ganei*) (Priority 1), Ghost Bat (*Macroderma gigas*) (Priority 4), Western Pebble-mound Mouse (*Pseudomys chapmani*) (Priority 4), Australian Bustard (*Ardeotis australis*) (Priority 4), Bush Stone-curlew (*Burhinus grallarius*) (Priority 4) and Star Finch (western subspecies) (*Neochmia ruficauda subclarescens*) (Priority 4).

During this fauna survey several Mulgara (*Dasycercus cristicauda* or *Dasycercus blythi*) burrows were identified in the vicinity of the application area. Mulgara individuals, diggings and scats were also recorded. The habitat in which these records occur is also found in the application area. The Mulgara inhabits arid sandy regions that support spinifex grasslands (DEC, 2006). Given there is suitable habitat present, this species may occur within the application area. Potential impacts to this species may be minimised by the implementation of a fauna management condition.

Some of the remaining conservation significant species listed above are considered highly mobile, have a wide distribution and/or are able to utilise a wide range of habitat types so the clearing is unlikely to significantly impact on the species. For some of these species the application area does not represent their core or preferred habitat type.

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

Methodology

DEC (2006)
RTX (2013)
Western Botanical (2012)
Western Botanical (2013)
GIS Database:
- Hydrography, linear
- Topographic Contours, Statewide
- Weeli Wolli 50cm Orthomosaic

(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 records of Threatened Flora within the application area (GIS Database). The nearest record of Threatened Flora is located approximately eight kilometres west of the application area at its closest point (GIS Database).

No Threatened Flora was recorded during the vegetation survey undertaken between 30 October 2012 and 8 November 2012 (Western Botanical, 2012).

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

Methodology

Western Botanical (2012)
GIS Database:
- Threatened and Priority Flora

(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 known Threatened Ecological Communities (TECs) within the application area (GIS Database). The nearest known TEC is approximately 70 kilometres south east of the application area (GIS Database).

No TECs were recorded during the vegetation survey (Western Botanical, 2012).

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

Methodology

Western Botanical (2012)
GIS Database:
- Threatened Ecological Sites Buffered

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

Comments

Proposal is not at variance to this Principle

The application area falls within the Pilbara Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 99.6% of the pre-European vegetation remains (see table) (GIS Database, Government of Western Australia, 2011).

The vegetation of the application area has been mapped as the following Beard vegetation associations (GIS Database):

29: Sparse low woodland; mulga, discontinuous in scattered groups; and
82: Hummock grasslands, low tree steppe; snappygum over *Triodia wiseana*.

Approximately 99.5% of Beard vegetation association 82 and approximately 99.9% of Beard vegetation association 29 remains at both a state and bioregional level (Government of Western Australia, 2011). Therefore the area proposed to be cleared does not represent a significant remnant of native vegetation within an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DEC Managed Lands
IBRA Bioregion – Pilbara	17,804,427	17,729,352	~99.6	Least Concern	8.35
Beard veg assoc. – State					
29	7,903,991	7,900,200	~99.9	Least Concern	5.22
82	2,565,901	2,553,217	~99.5	Least Concern	10.49
Beard veg assoc. – Bioregion					
29	1,133,220	1,132,939	~99.9	Least Concern	1.98
82	2,563,583	2,550,899	~99.5	Least Concern	10.50

* Government of Western Australia (2011)
** Department of Natural Resources and Environment (2002)

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

Methodology Department of Natural Resources and Environment (2002)
Government of Western Australia (2011)
GIS Database:
- IBRA WA (Regions – Sub Regions)
- 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

The application area is located along a regionally significant ephemeral watercourse known as Weeli Wolli Creek (GIS Database). The application area does not intersect the creek but comes within 20 to 50 metres of the creek at approximately six locations (GIS Database). There are numerous minor, non-perennial watercourses within the application area and surrounding area (GIS Database). It is expected that these would only flow after or during significant seasonal rainfall events, or substantial localised falls.

One vegetation association was identified as growing in association with Weeli Wolli Creek and two were identified growing on drainage plains (Western Botanical, 2012; Western Botanical, 2013). No pools or unusual riparian vegetation were observed during the vegetation survey (Western Botanical, 2013). The vegetation association (EcMACcCs) associated with Weeli Wolli Creek consists of *Eucalyptus camaldulensis* (River Gum) open tall woodland over *Acacia* sp. over Buffel Grass (*Cenchrus ciliaris*) and Birdwood Grass (*Cenchrus setiger*) on open drainage. According to Western Botanical (2013), this community generally occurred within 150 metres of the major channel of Weeli Wolli Creek and up to 300 metres in some instances and has been heavily impacted by weeds (*Cenchrus* sp.). River Gum was not found outside these areas. This vegetation association was described for 17 of the proposed drill pads and it is likely the access tracks associated with these drill pads also contain the same vegetation (Western Botanical, 2013). According to RTX (2013), the 17 proposed drill pads are sparsely vegetated. This is supported by aerial imagery which also shows the application area has avoided the more dense riparian vegetation associated with Weeli Wolli Creek (GIS Database). Potential impacts to riparian vegetation may be minimised by the implementation of a condition that restricts clearing of large trees.

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

Methodology RTX (2013)
Western Botanical (2012)
Western Botanical (2013)
GIS Database:
- Hydrography, linear
- Rivers
- Weeli Wolli 50cm Orthomosaic

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Comments

Proposal may be at variance to this Principle

The application area has been mapped as occurring on the Boolgeeda, Newman, River and Urandy land systems (GIS Database). The Boolgeeda land system consists of stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands and mulga shrubland (Van Vreeswyk et al., 2004). The Newman land system consists of rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands. The Urandy land system consists of stony plains, alluvial plains and drainage lines supporting shrubby soft spinifex grasslands. These land systems are generally not prone to erosion (Van Vreeswyk et al., 2004). The River land system consists of active flood plains and major rivers supporting grassy eucalypt woodlands, tussock grasslands and soft spinifex grasslands. Susceptibility to erosion in this land system is high to very high if vegetative cover is removed (Van Vreeswyk et al., 2004). Potential impacts from erosion as a result of the proposed clearing may be minimised by the implementation of a condition that restricts clearing of large trees and a staged clearing condition.

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

Methodology Van Vreeswyk et al. (2004)
GIS Database:
- Rangeland Land System Mapping

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Comments

Proposal is not likely to be at variance to this Principle

The application area does not lie within any conservation areas or Department of Environment and

Conservation (DEC) managed lands (GIS Database). The nearest conservation reserve is Karijini National Park, located approximately 66 kilometres west, north west of the application area (GIS Database). Based on the distance between the application area and Karijini National Park, the proposed clearing is not likely to impact the environmental values of any conservation area.

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

Methodology GIS Database:
- DEC Tenure

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

Comments

Proposal is not likely to be at variance to this Principle

According to available databases, the application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The application area is located along Weeli Wolli Creek and contains numerous minor, non-perennial watercourses (GIS Database). The application area does not intersect Weeli Wolli Creek but comes within approximately 20 to 50 metres at approximately six locations (GIS Database). Potential impacts to the surface water quality within Weeli Wolli Creek may be minimised by the implementation of a condition that restricts clearing of large trees and a staged clearing condition.

The annual average rainfall is 400 millimetres and the average annual evaporation rate is between 3,400 and 3,600 millimetres (GIS Database). Based on these averages, any surface water within the application area is likely to only remain for short periods following significant rainfall events.

According to available databases, groundwater salinity within the application area is between 500 and 1,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). This is considered fresh to marginal. 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
- Groundwater Salinity, Statewide
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)
- Rainfall, Mean Annual

(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 Fortescue River catchment area (GIS Database). Given the size of the area to be cleared (60 hectares) in relation to the size of the catchment area (2,975,192 hectares) (GIS Database), the proposed clearing is not likely to increase the potential of flooding on a local or catchment scale.

With an average annual rainfall of 400 millimetres and an average annual evaporation rate of between 3,400 and 3,600 millimetres there is likely to be little surface flow during normal seasonal rains (GIS Database). Whilst large rainfall events may result in flooding of the area, the proposed clearing is not likely to lead to an increase in incidence or intensity of flooding.

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

Methodology GIS Database:
- Evaporation Isopleths
- Hydrographic Catchments – Catchments
- Rainfall, Mean Annual

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

Comments

There are two native title claims over the area under application: WC05/6 and WC11/6 (GIS Database). These claims have been registered with the Native Title Tribunal on behalf of the claimant groups. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

According to available databases, there is one registered 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 Aboriginal Sites of Significance are damaged through the clearing process.

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

The clearing permit application was advertised on 14 January 2013 by the Department of Mines and Petroleum inviting submissions from the public. There were no submissions received.

Methodology GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims – Registered with the NNTT

4. References

DEC (2006) Mulgara in Fauna Species Profiles, Department of Environment and Conservation, Perth. http://www.dec.wa.gov.au/management-and-protection/animals/fauna-species-profiles.html?showall=&start=1 (Accessed 7 February 2013).

DEC (2013) NatureMap - Mapping Western Australia Biodiversity, Department of Environment and Conservation. http://naturemap.dec.wa.gov.au/default.aspx, viewed 6 February 2013.

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.

Government of Western Australia (2011) 2011 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). WA Department of Environment and Conservation, Perth.

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

RTX (2013) Further Information provided to the assessing officer by Rio Tinto Exploration Pty Limited on 5 and 7 February 2013.

Van Vreeswyk, A.M, Payne, A.L, Leighton, K.A & Hennig, P (2004) Technical Bulletin No. 92: An inventory and condition survey of the Pilbara region, Western Australia. Department of Agriculture, South Perth, Western Australia.

Western Australian Herbarium (2013) Florabase - The Western Australian Flora. Department of Environment and Conservation. Available online at http://florabase.dec.wa.gov.au/, viewed 6 February 2013.

Western Botanical (2012) Yandi Braid Drilling Program and Campsite Flora and Vegetation Survey. Unpublished report prepared by Western Botanical for Rio Tinto Exploration Pty Ltd dated November 2012.

Western Botanical (2013) Letter from Western Botanical to Rio Tinto Exploration Pty Ltd dated 4 February 2013.

5. Glossary

Acronyms:

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

Definitions:

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

P1 **Priority One - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations

which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

EX(W) **Extinct in the wild:** A native species which:
(a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
(b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

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

EN **Endangered:** A native species which:
(a) is not critically endangered; and
(b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.

VU **Vulnerable:** A native species which:
(a) is not critically endangered or endangered; and
(b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

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