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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 5342/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Process Minerals International Pty Ltd**

1.3. Property details

Property: Miscellaneous Licence 47/560
Local Government Area: Shire of East Pilbara
Colloquial name: Miscellaneous Licence 47/560

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
9.9		Mechanical Removal	Haul Road and Associated Infrastructure

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 20 December 2012

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 association is located within the application area (GIS Database):

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

The application area was surveyed as part of a larger Level 2 flora and vegetation survey of the proposed haul road. The survey was conducted by Rapallo on 20 to 24 November 2011 (Rapallo, 2012b). The following four vegetation types were identified within the application area:

Ridgetops and Slopes
A. Very open or open woodland dominated by eucalypts such as *Corymbia hamersleyana*, *Eucalyptus gamophylla*, and *E. leucophloia* subsp. *leucophloia*, or tall shrubs such as *Acacia inaequilatera*, *A. bivenosa*, *Senna glutinosa* subsp. *glutinosa*, *Hakea lorea* subsp. *lorea* or *Grevillea wickhamii*, over mixed shrubs such as *Eremophila fraseri* subsp. *parva* and *Sida cardiophylla*, and hummock grasses such as *Aristida holathera* var. *holathera*, *Triodia lanigera, T. epactia*, *T. pungens* and *T wiseana*. On sand, sandy loam or clay loam.

Floodplains and Drainage Lines
B. Open low *Corymbia hamersleyana* woodland, or mixed open shrubland dominated by *Gossypium robinsonii*, *G. australe*, *Acacia hilliana*, *A. inaequilatera*, *A. pyrifolia*, *A. maitlandii*, *A.adoxa* var. *subglabra*, *Eremophila fraseri* subsp. *parva*, *Senna artemisioides* subsp. *oligophylla* or *Grevillea wickhamii* with emergent eucalypts *Corymbia hamersleyana* or *Eucalyptus leucophloia* subsp. *leucophloia*, over dense mixed shrubs, and dense hummock grasses such as *Eriachne mucronata*, **Cenchrus ciliaris*, *Themeda triandra*, *Aristida holathera* var. *holathera*, *Triodia epactia*, *Triodia wiseana* and *T. lanigera.* On clay-loam or sandy loam with BIF shales.

C. Open low mixed woodland of *Eucalyptus gamophylla*, *E.?victrix*, *E. xerothermica* and *Corymbia hamersleyana*, or tall mixed shrubland dominated by *Acacia inaequilatera*, *Gossypium robinsonii*, *Grevillea wickhamii* or *Petalostylis labicheoides* with scattered eucalypts as listed, over open to dense small shrubs, and mixed hummock grasses such as *Themeda triandra*, *Triodia lanigera* and *T. pungens, T.wiseana.* On sandy or loamy clay with ironstone gravels.

Drainage Lines
D. Open mixed woodland dominated by eucalypts such as *Corymbia hamersleyana* and *Eucalyptus leucophloia* subsp. *leucophloia*, over mixed shrubs, or mixed shrubland dominated by *Grevillea wickhamii*, *Gossypium robinsonii*, *Acacia inaequilatera*, *A. pyrifolia* and *A. tumida* var. *pilbarensis* with emergent eucalypts as listed, over mixed small shrubs such as *Tephrosia densa* or *Corchorus lasiocarpus* subsp. *parvus*, and dense hummock grasses such as *Aristida holathera* var. *holathera*, *Triodia epactia* and *Themeda triandra*. On loam or gravel with BIF shales or cherts.

Clearing Description

Process Minerals International Pty Ltd (Process Minerals) has applied to clear 9.9 hectares within an application area of approximately 9.9 hectares (GIS Database). The application area is located approximately 80 kilometres north east of Newman (GIS Database).

The purpose of the application is to construct a portion of the proposed haul road linking Phil's Creek Iron Ore Mine to the Munjina Roy Hill Road. This application covers approximately 5.23 kilometres of the proposed haul road within Miscellaneous Licence 47/560 and also includes construction of flood protection structures such as culverts and floodways. The average width of the proposed haul road is 19 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 Rapallo (2012b).

The flora and vegetation survey was conducted during the dry season and some ephemeral or cryptic taxa may not have been visible at the time of the survey. Some plants were difficult to identify due to being 'browned off' by the heat (Rapallo, 2012b).

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

Seven vegetation communities were identified within the proposed haul road survey area (approximately 382.5 hectares) (Rapallo, 2012b). Four of these occur within the application area and are associated with ridgetops and slopes, floodplains and drainage lines. Rapallo (2012d) considered all vegetation types to be relatively widespread and well represented in the region.

A total of 153 plant taxa (including subspecies and varieties) from 71 genera were recorded within the proposed haul road survey area (Rapallo, 2012b). Three weed species were identified including Mexican Poppy (*Argemone ochroleuca*), Buffel Grass (*Cenchrus ciliaris*) and Mimosa Bush (*Vachellia farnesiana*). None of these species are listed as a 'Declared Plant' for the Pilbara region under the *Agriculture and Related Resources Protection Act 1976*. 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 or Priority 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 Community (PEC). However, the proposed clearing is located approximately 35 kilometres south west of the marsh and is therefore unlikely to impact the Fortescue Marsh.

No Threatened Flora species were recorded within the proposed haul road survey area (Rapallo, 2012b). One Priority 3 Flora species, *Rhagodia* sp. Hamersley, was recorded at one location, however, this was recorded outside the application area, approximately 18 kilometres to the south east. Rapallo (2012a) has indicated other Priority Flora species may have gone undetected during the survey due to access constraints and timing of the survey in the dry season. Access constraints resulted in helicopter travel between seven 50 metre by 50 metre quadrats within Miscellaneous Licence 47/560 and as such not all parts of the application area were traversed on foot. According to Naturemap (DEC, 2012), three Priority Flora species have been recorded within ten kilometres of the application area. Rapallo (2012a) indicates two of these species, *Stylidium weeliwolli* (Priority 2) and *Goodenia nuda* (Priority 2), are likely to occur within the application area. *Stylidium weeliwolli* has been recorded at two locations within ten kilometres with one record occuring on the edge of permanent water and the second occuring near Weeli Wolli Creek (Western Australian Herbarium, 2012). This species occurs on gritty sand soil, sandy clay on the edge of watercourses (Western Australian Herbarium, 2012). As the application area contains minor, non-perennial watercourses, it is unlikely the application area represents significant habitat for this species. *Goodenia nuda* is known from 56 records over a widespread area (Western Australian Herbarium, 2012) and is unlikely to be signifcantly impacted by the proposed clearing if present.

A Level 1 vertebrate fauna survey by Rapallo on 8 to 10 November and 30 November to 1 December 2011 recorded a total of 76 fauna species comprising 15 reptile, 52 bird and nine mammal species within the proposed haul road survey area (Rapallo, 2012c). According to Rapallo (2012d), the habitat types within the application area are not unique or restricted and occur widely throughout the Pilbara.

Considering the above the floristic and faunal diversity of the application area is likely to be typical of the Pilbara bioregion.

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

Methodology

DEC (2012)
Rapallo (2012a)
Rapallo (2012b)
Rapallo (2012c)
Rapallo (2012d)
Western Australian Herbarium (2012)
GIS Database:

- Threatened and Priority Flora
- Threatened Ecological Sites Buffered

(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

A Level 1 vertebrate fauna survey of the proposed haul road was undertaken by Rapallo on 8 to 10 November and 30 November to 1 December 2011. Nine habitats were identified during the survey (Rapallo, 2012c). These were associated with various land systems, however, only one habitat type, breakaway/ridgeline, was associated with the Newman land system in which the application area occurs. This habitat type is described as 'Ironstone rocky *Triodia epactia* breakaway and outcroppings. Top and sides of breakaway support hakea, mixed acacia and snappy gums over sparse Spinifex and Senna' (Rapallo, 2012c). This habitat type is found along the edge of the valley in which the application area is located. According to Rapallo (2012d), the habitat types within the application area are not unique or restricted and occur widely throughout the Pilbara.

A total of 76 fauna species comprising 15 reptile, 52 bird and nine mammal species were recorded within the proposed haul road survey area (Rapallo, 2012c). Conservation significant fauna detected include the Northern Quoll (*Dasyurus hallucatus*) (Endangered; Schedule 1), Australian Bustard (*Ardeotis australis*) (Priority 4) and Rainbow Bee-eater (*Merops ornatus*) (Marine; Migratory under *EPBC Act*; Schedule 3). Three active and two dormant mounds of the Western Pebble-mound Mouse (*Pseudomys chapmani*) (Priority 4) were also recorded. None of these records occur within the application area, however, a single Northern Quoll was detected approximately 150 metres south of Miscellaneous Licence 47/560 (Rapallo, 2012d).

The Northern Quoll was detected as single recordings on motion detecting cameras at two separate locations in habitats adjacent to the haul road alignment. One of these was recorded approximately 150 metres south of Miscellaneous Licence 47/560 on the edge of a mesa. According to Rapallo (2012c), the Northern Quoll population in the area is likely to be of low density given the limited number of camera detections. Rapallo (2012d) states that habitats in the application area are low lying and aligned to valley floors and do not include suitable denning habitat such as outcrops, overhangs, caves and crevices. However, it does include drainage associated habitats which are suitable for dispersal and foraging. Potential denning habitat includes some rocky breakaways along the edge of the valley, adjacent to the application area. These rocky habitats may also support the Pilbara Olive Python (*Liasis olivaceus barroni*) (Vulnerable; Schedule 1), Peregrine Falcon (*Falco peregrinus*) (Vulnerable; Schedule 4) and Blindsnake (*Ramphotyphlops ganei*) (Priority 1). Based on the above, Rapallo (2012d) recommended that clearing be avoided within 50 metres of rocky outcrops, overhangs and caves. Process Minerals (2012) have advised the application area is 50 metres from potential denning habitat.

The application area is also likely to support the Australian Bustard, Rainbow Bee-eater, Western Pebble-mound Mouse and several other conservation significant species (Rapallo, 2012d). However, based on factors such as species mobility, core or preferred habitat requirements and the availability of similar habitat in surrounding areas, these species are unlikely to be significantly impacted by the proposed clearing. Western Pebble-mound Mouse mounds, active nests and large trees should be avoided where possible (Rapallo, 2012d).

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

Methodology

Process Minerals (2012)
Rapallo (2012c)
Rapallo (2012d)

(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 species within the application area (GIS Database). No Threatened Flora species were recorded within the application area during the vegetation survey undertaken on 20 to 24 November 2011 (Rapallo, 2012b). The nearest record of Threatened Flora is located approximately 5.4 kilometres south, south west of the application area (GIS Database). According to Naturemap (DEC, 2012), this record is Threatened Flora species, *Lepidium catapycnon*. This species is known to occur on skeletal soils and hillsides (Western Australian Herbarium, 2012). Rapallo (2012a) has indicated this species is likely to occur within the application area based on habitat assessment and database searches. Based on the abovementioned habitat description, vegetation community A may comprise suitable habitat for this species as it is located on ridgetops and slopes. This vegetation community comprises 2.9 hectares of the application area and was also identified at several other locations along the proposed haul road. This species was not detected within these or any other vegetation communities during the current survey or during the flora and vegetation survey of nearby Phil's Creek Iron Ore mine. This indicates a low risk of this species occurring within the application area.

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

Methodology

DEC (2012)

Rapallo (2012a)
Rapallo (2012b)
Western Australian Herbarium (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 75 kilometres south east of the application area (GIS Database).

No TECs were recorded during the vegetation survey (Rapallo, 2012d).

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

Methodology

Rapallo (2012d)
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 association (GIS Database):

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

Approximately 99.5% of Beard vegetation association 82 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 IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,427	17,729,352	~99.6	Least Concern	6.3
Beard veg assoc. – State					
82	2,565,901	2,553,217	~99.5	Least Concern	10.2
Beard veg assoc. – Bioregion					
82	2,563,583	2,550,899	~99.5	Least Concern	10.2

* 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

There are several minor non-perennial watercourses that cross the application area (GIS Database). According to Rapallo (2012d), the application area intersects tributaries of Marillana Creek which is a large tributary of Weeli Wolli Creek. Rapallo (2012d) notes that all creeks within the application area are minor ephemeral drainage lines. Available databases show these are numerous in the surrounding area (GIS Database). The

fauna survey identified a major drainage line within the proposed haul road survey area, however, this is not located within the application area (Rapallo, 2012c).

Proposed impacts to watercourses include construction of creek crossings (culverts and floodways) and infilling of some minor drainage lines to construct the haul road (Rapallo, 2012d). No diversion of any major creek line is required. The proposed impacts require clearing of 7 hectares of riparian vegetation associated with four creek lines and drainages (Rapallo, 2012d). This riparian vegetation is associated with minor drainage lines (vegetation types B and C) and broad drainage floors (vegetation type D). Rapallo (2012d) considers these vegetation types as typical Pilbara vegetation complexes. Rapallo (2012d) recommends avoiding larger trees and shrubs at creek crossings as these help to maintain bank and sediment structure during flow events. Potential impacts to riparian vegetation as a result of the proposed clearing may be minimised by the implementation of a vegetation management condition.

Several water management structures are proposed including drainage diversion channels to redirect surface runoff around the haul road, culverts and floodways where drainage lines cross the haulage road and spoon drains to divert overland flow from the haulage road (Rapallo, 2012d). Creek crossings will be designed to avoid significant changes in flow velocities and construction will be undertaken during the dry season where possible (Rapallo, 2012d).

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

Methodology
Rapallo (2012c)
Rapallo (2012d)
GIS Database:
- Hydrography, linear
- Rivers

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

Comments

Proposal is not likely to be at variance to this Principle

The application area has been mapped as occurring on the Newman land system (GIS Database). This land system consists of hills and ranges, supporting hard spinifex grasslands. Relief can be up to 450 metres. The Newman land system is generally not prone to erosion (Van Vreeswyk et al., 2004). Landforms within the application area consist of ridgetops and slopes, floodplains and drainage lines (Rapallo, 2012d).

Several water management structures are proposed including culverts and floodways where drainage lines cross the haulage road, drainage diversion channels and spoon drains (Rapallo, 2012d). Creek crossings will be designed to avoid significant changes in flow velocities and construction will be undertaken during the dry season where possible (Rapallo, 2012d). Process Minerals will manage road construction to prevent significant erosion, scouring and movement of sediment from entering waterways (URS, 2012b) (cited in Rapallo, 2012d). Given the land system is generally not prone to erosion and the abovementioned management measures, it is unlikely the proposed clearing will cause appreciable land degradation.

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

Methodology
Rapallo (2012d)
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 60 kilometres 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). There are no permanent waterbodies or watercourses within the application area, however, there are several minor, non-perennial watercourses that occur within the application area (GIS Database).

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 expected to cause salinity levels within the application area to alter.

Several water management structures are proposed including culverts and floodways, designing creek crossings to avoid significant changes in flow velocities and construction during the dry season where possible (Rapallo, 2012d). Process Minerals will manage road construction to prevent significant erosion, scouring and movement of sediment from entering waterways (URS, 2012b) (cited in Rapallo, 2012d).

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

Methodology Rapallo (2012d)
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 (9.9 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

The clearing permit application was advertised on 26 November 2012 by the Department of Mines and Petroleum (DMP) inviting submissions from the public. One submission was received stating the granting of the clearing permit application will not be supported. This relates to concerns over the amount of clearing in the Shire of East Pilbara. DMP have responded to these concerns and are currently liaising with the submitting party and the Department of Environment and Conservation to further address these concerns.

There is one native title claim over the area under application: WC11/6 (GIS Database). This claim has 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 are two registered Aboriginal Sites 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.

Methodology GIS Database:

- Aboriginal Sites of Significance
- Native Title Claims – Registered with the NNTT

4. References

DEC (2012) NatureMap - Mapping Western Australia Biodiversity, Department of Environment and Conservation. http://naturemap.dec.wa.gov.au/default.aspx, viewed December 2012.

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.

Process Minerals (2012) Further Information provided by Process Minerals International Pty Ltd in email correspondence dated 27 November 2012.

Rapallo (2012a) Further Information provided by Rapallo in email correspondence dated 6 and 12 December 2012.

Rapallo (2012b) Level 2 Flora and Vegetation Survey of Phil's Creek Haul Road for Process Minerals International. Unpublished report for Process Minerals International Pty Ltd dated February 2012.

Rapallo (2012c) Level 1 Phil's Creek Vertebrate Fauna Survey for Process Minerals International. Unpublished report for Process Minerals International Pty Ltd dated February 2012.

Rapallo (2012d) Phil's Creek Iron Ore Project Supporting Information for a Native Vegetation Clearing Permit Application Area Permit Haul Road on L47/560. Unpublished report for Process Minerals International Pty Ltd dated September 2012.

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 (2012) Florabase - The Western Australian Flora. Department of Environment and Conservation. Available online at http://florabase.dec.wa.gov.au/, viewed December 2012.

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.