



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 5527/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Process Minerals International Pty Ltd

1.3. Property details

Property: Miscellaneous Licence 47/626
Local Government Area: Shire of East Pilbara
Colloquial name: Phil's Creek Haul Road

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 23 May 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 association is located within the application area (GIS Database):

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

Rapallo (2012a) conducted a Level 2 flora and vegetation survey over the proposed haul road alignment on 20 to 24 November 2011. However, Miscellaneous Licence 47/626 (i.e. the application area) was excluded from this survey. A Level 2 flora and vegetation survey commissioned by Fortescue Metals Group (FMG) for their Nyidinghu Project covers the application area and was undertaken by Cardno in March, April and July 2011. Process Minerals International Pty Ltd (PMI) (2013b) has utilised vegetation mapping from this survey to describe vegetation communities within the application area. According to PMI (2013b), nine vegetation communities occur within the application area:

Mulga on Clay / Clay Loam Plain

AaAsEs - *Acacia aneura* low to mid open woodland over *Acacia synchronicia* tall shrubland to open shrubland over *Eragrostis setifolia* low sparse grassland;

AaPsCf - *Acacia aneura* woodland over *Psychodax latifolia*, *Acacia tetragonophylla* and *Acacia synchronicia* open shrubland over *Chrysopogon fallax*, *Cenchrus ciliaris* open tussock grassland;

Acacia Woodlands in Flowlines

AcAhCc - *Acacia citrinoviridis* and *Acacia pruinocarpa* low open woodland over *Atalaya hemiglauca* and *Hakea lorea* subsp. *lorea* tall isolated shrubland over **Cenchrus ciliaris* mid tussock grassland;

ApAdCc - *Acacia pruinocarpa*, *Corymbia hamersleyana* and *Acacia citrinoviridis* low to mid open woodland over *Acacia dictyophleba*, *Hakea lorea* subsp. *lorea* and *Acacia synchronicia* tall sparse shrubland over **Cenchrus ciliaris* and **Cenchrus setiger* tussock grassland;

AtSaTp - *Acacia tumida* var. *pilbarensis*, *Grevillea wickhamii* subsp. *hispidula* and *Gossypium robinsonii* low open mallee shrubland over *Senna artemisioides* subsp. *oligophylla* and *Acacia adoxa* var. *adoxo* sparse heath shrubland over *Triodia pungens* hummock grassland;

Hummock Grasslands on Sand Plains

CoAaTp - *Corymbia opaca*, *Acacia inaequilatera* and *Eucalyptus gamophylla* low open woodland over *Acacia ancistrocarpa*, *Petalostylis labicheoides* and *Grevillea wickhamii* subsp. *hispidula* tall shrubland over *Triodia pungens* low hummock grassland;

CoAdTp - *Corymbia opaca* and *Acacia inaequilatera* open woodland over *Acacia sclerosperma* subsp. *sclerosperma*, *Acacia dictyophleba* and *Acacia pachyacra* sparse shrubland over *Triodia epactia* sparse hummock grassland;

Hummock Grasslands on Rocky Hills

EIGwTs - *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Grevillea wickhamii* subsp *hispidula* and *Acacia bivenosa* tall sparse shrubland over *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) and *Triodia epactia* low hummock grassland; and

Major Creeklines

EvAhCc - *Eucalyptus victrix*, *Acacia citrinoviridis* and *Acacia pruinocarpa* mid open woodland over *Atalaya hemiglauc*a and *Hakea lorea* subsp. *lorea* tall isolated shrubland over **Cenchrus ciliaris* and **Cenchrus setiger* mid tussock grassland.

Clearing Description	Process Minerals International Pty Ltd has applied to clear 71.37 hectares within an application area of approximately 491 hectares (Miscellaneous Licence 47/626) (GIS Database). The application area is located approximately 85 kilometres north, north west 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 includes borrow pits, turkey nests, vegetation and topsoil stockpile areas and flood protection structures such as culverts and floodways (PMI, 2013b). Clearing will be by mechanical means.
Vegetation Condition	Pristine: No obvious signs of disturbance (Keighery, 1994); To Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).
Comment	Vegetation condition was determined by Cardno and reported by PMI (2013b). These condition ratings were converted to the Keighery (1994) scale by the assessing officer.

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments	<p>Proposal is not likely to be at variance to this Principle</p> <p>Nine vegetation communities occur within the application area (PMI, 2013b). These are associated with sand plains, flowlines, major creeklines, rocky hills and clay/cloam plains. Available databases show no Threatened Ecological Communities (TECs) have been recorded within the application area (GIS Database). The application area is located within the buffer of two Priority Ecological Communities (PECs), the Priority 1 Fortescue Marsh PEC and the Priority 3 Fortescue Valley Sand Dunes PEC. The proposed clearing is located approximately 18 kilometres south of the Fortescue Marsh (GIS Database). No TECs or PECs were identified within the application area (PMI, 2013b).</p> <p>The flora and vegetation survey conducted by Rapallo (2012a) identified a total of 153 plant taxa (including subspecies and varieties) from 71 genera within the proposed haul road survey area (excludes Miscellaneous Licence 47/626 which covers the application area). Three weed species were identified including Mexican Poppy (<i>Argemone ochroleuca</i>), Buffel Grass (<i>Cenchrus ciliaris</i>) and Mimosa Bush (<i>Vachellia farnesiana</i>) (Rapallo, 2012a). Potential impacts from weeds as a result of the proposed clearing may be minimised by the implementation of a weed management condition.</p> <p>Available databases show no Threatened or Priority Flora have been recorded within the application area (GIS Database). No Threatened Flora species were recorded during the Rapallo or Cardno flora and vegetation surveys (PMI, 2013b). A combined total of seven Priority Flora species were recorded during the Rapallo and Cardno surveys, however, none of these occur within the application area (PMI, 2013b).</p> <p>A Level 1 fauna survey by Rapallo (2012b) recorded a total of 76 fauna species comprising 15 reptile, 52 bird and nine mammal species within the proposed haul road survey area (excludes Miscellaneous Licence 47/626 which covers the application area). According to PMI (2013b), fauna habitat within the application area is broadly described as drainage line/river/creek (minor/major), hills/ranges/plateaux, hummock grassland, plain (shrubland) and woodland (open/closed). These broad habitat types are considered typical of the Pilbara bioregion (PMI, 2013b).</p> <p>Considering the above the floristic and faunal diversity of the application area is likely to be typical of the Pilbara bioregion.</p> <p>Based on the above, the proposed clearing is not likely to be at variance to this Principle.</p>
Methodology	PMI (2013b) Rapallo (2012a) Rapallo (2012b) 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

Rapallo (2012b) conducted a Level 1 fauna survey over the proposed haul road alignment on 8 to 10 November and 30 November to 1 December 2011. However, the application area (i.e. Miscellaneous Licence 47/626) was excluded from the survey. A Level 2 fauna survey commissioned by FMG for their Nyidinghu Project covers the application area and was undertaken by Bamford Consulting Ecologists in April and June 2011. PMI (2013b) has utilised information from the Rapallo survey for the application area and also report the conservation significant fauna recorded by Bamford Consulting Ecologists.

According to PMI (2013b), fauna habitat within the application area is broadly described as drainage line/river/creek (minor/major), hills/ranges/plateaux, hummock grassland, plain (shrubland) and woodland (open/closed). Weeli Wolli Creek, a regionally significant creek, crosses the application area (GIS Database). Riparian vegetation associated with this creek is likely to provide shelter and roosting and nesting habitat that is limited in the local area.

The survey conducted by Rapallo (2012b) identified a total of 76 fauna species comprising 15 reptile, 52 bird and nine mammal species. 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. Six conservation significant fauna species were recorded by Bamford Consulting Ecologists, however, none of these records are located within the application area (PMI, 2013b). These species include the Rainbow Bee-eater, Peregrine Falcon (*Falco peregrines*) (Schedule 4), Pilbara Olive Python (*Liasis olivaceus barroni*) (Vulnerable; Schedule 1), Australian Bustard, Fork-tailed Swift (*Apus pacificus*) (Migratory under EPBC Act) and Eastern Great Egret (*Ardea modesta*) (Migratory under EPBC Act) (PMI, 2013b).

Habitat for the conservation significant avian species listed above and the Western Pebble-mound Mouse is widespread throughout the region so the proposed clearing is not expected to significantly impact these species. According to PMI (2013a), the application area consists of flat plains and does not include significant habitat for the Northern Quoll such as rocky outcrops, overhangs, caves and crevices. The Pilbara Olive Python has more restricted habitat usually associated with riverine woodland areas, gorges and large rock holes and swamps (Bamford Consulting Ecologists, 2012) (cited in DMP, 2012). Significant habitat for this species was identified along Weeli Wolli Creek (PMI, 2013b). Potential impacts on this species may be minimised by the implementation of a condition that restricts clearing of vegetation associated with Weeli Wolli Creek.

A potential Brush-tailed Mulgara (*Dasyercus blythi*) (Priority 4) burrow was identified adjacent to the application area (Rapallo, 2012b). A motion detecting camera did not detect any footage at this burrow and it was considered unlikely to be in use (Rapallo, 2012b). No Mulgara burrows or sightings were recorded during the fauna survey undertaken by Bamford Consulting Ecologists (PMI, 2013a). The Mulgara inhabits arid sandy regions that support spinifex grasslands (DEC, 2006). This habitat is present within the application area and based on an adjacent Environmental Protection Authority (EPA) assessment appears to be well represented within the local area (EPA, 2013). Given the nature of the proposed clearing (i.e. a narrow footprint over a large area) and the occurrence of suitable habitat outside the application area, it is unlikely the proposed clearing will have a significant impact on this species.

A number of other conservation significant species have the potential to utilise the application area, however, the proposed clearing is not expected to have a significant impact on these species.

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

Methodology DEC (2006)
DMP (2012)
EPA (2013)
PMI (2013a)
PMI (2013b)
Rapallo (2012b)
GIS Database:
- Hydrography, linear

(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). No Threatened Flora was recorded during the vegetation survey undertaken by Cardno (PMI, 2013b) or Rapallo (2012a).

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

Methodology PMI (2013b)
Rapallo (2012a)
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 undertaken by Cardno (PMI, 2013b) or Rapallo (2012a).

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

Methodology PMI (2013b)
Rapallo (2012a).
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, 2013).

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

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

Approximately 99.9% of Beard vegetation association 29 remains at both a state and bioregional level (Government of Western Australia, 2013). 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	17,808,657	17,733,584	~99.6	Least Concern	8.37
Beard veg assoc. – State					
29	7,903,991	7,900,200	~99.9	Least Concern	5.22
Beard veg assoc. – Bioregion					
29	1,133,220	1,132,939	~99.9	Least Concern	1.98

* Government of Western Australia (2013)

** 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 (2013)
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). The most significant of these is Weeli Wollie Creek which passes through the southern part of the application area. The vegetation community EvAhCc was identified as being associated with 'major creeklines' and vegetation

communities AcAhCc, AtSaTp and ApAdCc were identified as being associated with flowlines (PMI, 2013b).

Proposed impacts to watercourses include construction of creek crossings (culverts and floodways) and infilling of some minor drainage lines to construct the haul road (PMI, 2013b). 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 (PMI, 2013b). Creek crossings will be designed to avoid significant changes in flow velocities and construction will be undertaken during the dry season where possible (PMI, 2013b).

Potential impacts to Weeli Wolli Creek and other watercourses may be minimised by the implementation of a condition that restricts clearing of vegetation associated with Weeli Wolli Creek and a watercourse management condition.

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

Methodology PMI (2013b)
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 may be at variance to this Principle

The application area has been mapped as occurring on the Boolgeeda, Fortescue, River, Fan and Urandy land systems (GIS Database). The Boolgeeda and Urandy land systems are generally not prone to erosion (Van Vreeswyk et al., 2004). The washplain and drainage tract units of the Fan land system are moderately susceptible to soil erosion if vegetation cover is removed (Van Vreeswyk et al., 2004). The River land system and alluvial plains and levees within the Fortescue Land system are highly susceptible to erosion if vegetation cover is removed (Van Vreeswyk et al., 2004).

Several water management structures are proposed including culverts and floodways where drainage lines cross the haulage road, drainage diversion channels and spoon drains (PMI, 2013b). Creek crossings will be designed to avoid significant changes in flow velocities and construction will be undertaken during the dry season where possible (PMI, 2013b). PMI will manage road construction to prevent significant erosion, scouring and movement of sediment from entering waterways (PMI, 2013b).

Potential impacts of erosion may be minimised by the implementation of a condition that restricts clearing of vegetation associated with Weeli Wolli Creek, a watercourse management condition and a staged clearing condition.

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

Methodology PMI (2013b)
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 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).

There are no permanent waterbodies or watercourses within the application area, however, there are several

non-perennial watercourses that occur within the application area (GIS Database). The proposed haul road crosses Weeli Wolli Creek at one location in the southern part of the application area (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 vegetation associated with Weeli Wolli Creek.

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 (PMI, 2013b). PMI will manage road construction to prevent significant erosion, scouring and movement of sediment from entering waterways (PMI, 2013b). Potential impacts to watercourses may be minimised by the implementation of a watercourse management condition.

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

Methodology PMI (2013b)
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 (71.37 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 is one native title claim over the area under application: WC05/6 (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 no 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.

The clearing permit application was advertised on 1 April 2013 by the Department of Mines and Petroleum (DMP) inviting submissions from the public. The clearing permit application was readvertised on 29 April 2013 following an increase in the application area from 71.37 hectares to 491 hectares. One submission was received stating the granting of the clearing permit application will not be supported. There has been ongoing communications with the submitting party and this will continue in relation to future clearing permit applications.

- 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=2>
(Accessed 8 May 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.
- DMP (2012) Clearing Permit Decision Report for CPS 4947/1. Prepared by the Department of Mines and Petroleum, published September 2012.
- EPA (2013) Report and Recommendations of the Environmental Protection Authority Iron Valley Above Watertable Mining Project Iron Ore Holdings Ltd Report 1463. Dated January 2013.
- Government of Western Australia (2013) 2012 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2012. 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.
- PMI (2013a) Further Information provided to the assessing officer for CPS 5527/1 by Process Minerals International Pty Ltd in email correspondence dated 2 May 2013.
- PMI (2013b) Mining Proposal for the Phil's Creek Haul Road Miscellaneous Licences L47/559, L47/555, L47/627, L47/626, L47/569 and L47/336. Unpublished report prepared by Process Minerals International Pty Ltd dated March 2013.
- Rapallo (2012a) 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 (2012b) Level 1 Phil's Creek Vertebrate Fauna Survey for Process Minerals International. Unpublished report for Process Minerals International Pty Ltd dated February 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.

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.