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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4157/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Avoca Mining Pty Ltd**

1.3. Property details

Property: Mining Lease 15/348
Mining Lease15/375
Mining Lease 15/786
Miscellaneous Licence 15/282
Local Government Area: Shire of Coolgardie
Colloquial name: Chalice Haul Road

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
93.06		Mechanical Removal	Haul Road Construction

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 17 February 2011

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Beard Vegetation Associations have been mapped at a scale of 1:250,000 for the whole of Western Australia. Two Beard Vegetation Associations are located within the application area (Shepherd, 2009): Beard Vegetation Association 8: Medium woodland; salmon gum and gimlet; and Beard Vegetation Association 522: Medium woodland; redwood (*Eucalyptus transcontinentalis*) and merrit (*Eucalyptus urna*). Flora and vegetation surveys for the Chalice Haul Road area have been undertaken by GHD (2010) between 6 and 8 October 2010. Four vegetation associations have been identified within the application area (GHD, 2010); **Highly Disturbed:** Clearing or other activities have fundamentally altered the composition of native vegetation. Few native species present (primarily disturbance response species);	Avoca Mining Pty Ltd has applied to clear up to 93.06 hectares of native vegetation. The clearing is for a haul road which will be approximately 30 metres wide and 90 kilometres long (GHD, 2010). The proposal area is situated approximately 60 kilometres south of Kambalda (GHD, 2010).	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994). To Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994).	The vegetation condition was assessed by an ecologist from GHD (2010). Much of the application area overlies the former Chalice haul road and current access track. The former Chalice haul road has been ripped and seeded in the late 1990s (GHD, 2010). The current access track in contrast is largely devoid of native vegetation (GHD, 2010). A total of six weed species were identified during the flora survey: *Lysimachia arvensis* (Pimpernel); *Centaurea melitensis* (Maltese Cockspur); *Carrichtera annua* (Ward's Weed); *Medicago minima* (Small Burr Medic); *Rostraria pumila*; and *Sonchus oleraceus* (Common Sowthistle). None of these species identified within the flora survey are listed as declared weeds by the Western Australian Department of Agriculture and Food (WA) (GHD, 2010).

Rehabilitated Haul Road:

Low open woodland of *Eucalyptus salmonophloia*, *E. lesouefii*, *E.celastroides subsp. celastroides, E. griffithsii and E. urna over Melaleuca sheathiana, Exocarpos aphyllus over Senna artemisioides subsp. filifolia, Scaevola spinescens, Atriplex nummularia subsp. spathulata, Cratystylis conocephala over Olearia muelleri, Atriplex vesicaria, Maireana trichoptera* and *Sclerolaena diacantha* on rehabilitated haul road;

***Eucalyptus salmonophloia* and *E. Ravida* woodland on calcareous plains:**

Woodland of *Eucalyptus salmonophloia* and *E. ravida* with occasional E. lesouefii over *Santalum acuminatum*, *Exocarpos aphyllus* and scattered *Melaleuca sheathiana over Cratystylis conocephala, Eremophila scoparia, Scaevola spinescens* and *Atriplex nummularia subsp. spathulata over Atriplex vesicaria, Olearia muelleri* and *Acacia colletioidies* on calcareous plains; and

Eucalyptus lesouefii and E. torquata woodland on low hill:

Low woodland of *Eucalyptus lesouefii* and *E.* torquata over Santalum acuminatum, Melaleuca sheathiana, Exocarpos aphyllus over low shrubland of *Eremophila scoparia, Senna artemisioides subsp. filifolia, Scaevola spinescens, Eremophila caerulea subsp. caerulea* and *Westringia rigida* on low hill.

3. Assessment of application against clearing principles

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

Comments

Proposal is not likely to be at variance to this Principle

The application area is located within the Eastern Goldfields subregion of the Coolgardie (C003) Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). Cowan (2001) describes the vegetation of the Eastern Goldfields subregion as mallees, acacia thickets and shrub-heaths on sandplains; Eucalyptus woodlands occurring around saltlakes; salt lake supporting dwarf shrublands of samphire and woodlands and Dodonaea shrubland occuring on basic graninulites of the Fraser Range. Eucalyptus woodlands have been identified by Cowan (2001) as having a high species and ecosystem diversity within the Eastern Goldfields subregion.

The vegetation within the application area consists of Beard Vegetation Associations 8 and 522 (GIS Database) which are considered common and widespread through the Coolgardie region, with approximately 98.7% and 100% respectively remaining of the pre-European vegetation (Shepherd, 2009).

Four vegetation associations were identified within the application area, containing a total of 110 taxa from 20 families. Of these 105 taxa were native species. Species richness within the application ranges from very low diversity within the foot print of the existing access track to moderately diverse within uncleared areas of native vegetation (GHD, 2010).

No Declared Rare Flora species, Threatened Ecological Communities or Priority Ecological Communities were identified within the application area (GHD, 2010; GIS Database). A Priority 3 flora species *Diocirea acutifolia* was identified within the rehabilitated former Chalice haul road area (GHD, 2010). This species was also identified as the dominant understorey species in two vegetation types observed approximately three kilometres north of the application area (GHD, 2010). The species is known from fifteen records within the Emu Rocks and Norseman region of the Goldfields (GHD, 2010). While the distribution of this species is restricted, it appears to be relatively abundant where it occurs (GHD, 2010). The proposed clearing is not likely to impact on the existence of this species at the local level given the presence of additional recorded populations within the Goldfields (GHD, 2010).

A reconnaissance fauna survey of the application area was undertaken by GHD on 8 October 2010 (GHD, 2010). A total of 24 bird species, 3 mammal species, and 5 reptile species were recorded (GHD, 2010). No amphibian species were observed (GHD, 2010). Three species of conservation significance were recorded:

- *Coraacina novaehollandiae* (Black-faced Cuckoo-shrike), Marine *Environmental Protection and Biodiversity Conservation (EPBC) Act 1999*;
- *Oreoica guttralis* (Crested Bellbird) listed DEC Priority Four; and
- *Oreoica guttralis guttralis* (Crested Bellbird - Southern), listed DEC Priority Four (GHD, 2010).

Three broad fauna habitat types were identified within the application area and considered common and widespread (GHD, 2010).

The vegetation condition in the application area was recorded as 'completely degraded' to 'excellent' (GHD, 2010). As much of the application area overlies the former chalice haul road (rehabilitated in the late 1990s) and the current access track, native vegetation within the application area has been subject to significant disturbance (GHD, 2010). There were six weed species found during the flora survey that was undertaken between 6 and 8 October 2010, however none of these weed species are listed by the Western Australian Department of Agriculture and Food as Declared Plants (GHD, 2010). While GHD (2010) have noted that weed levels across the application area are relatively low, the potential impacts to biodiversity through further weed invasion as a result of the proposed clearing may be minimised by the implementation of a weed control condition.

Given that the vegetation and habitat types within the area applied to be cleared are well represented locally and regionally it is not likely that the area to be cleared comprises a high level of biological diversity in a regional context.

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

Methodology

Cowan (2001)
GHD (2010)
Shepherd (2009)
GIS Database:
- Declared Rare and Priority Flora List
- IBRA Australia
- IBRA WA (Regions - Sub Regions)
- Threatened Ecological Communities

(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 reconnaissance fauna survey of the application area was undertaken by GHD on 8 October 2010. A total of 24 bird species, 3 mammal species, and 5 reptile species were recorded (GHD, 2010). No amphibian species were observed (GHD, 2010). A search was undertaken by GHD (2010) of the Western Australian Museum and the Department of Environment and Conservation's (DEC) Naturemap online databases for fauna that may occur within a 30 kilometre radius of the application area. The search identified 4 amphibian, 168 avian, 20 mammalian and 44 reptilian species which may occur within the application area (GHD, 2010).The following species of conservation significance could potentially utilise the application area:

-*Merops ornatus* (Rainbow Bee-eater), Migratory and Marine *Environmental Protection and Biodiversity Conservation (EPBC) Act 1999*;
-*Acanthiza iredalei iredalei* (Slender-billed Thornbill); Migratory *EPBC Act 1999*;
-*Ardea ibis* (Cattle Egret), Migratory *EPBC Act 1999*;
-*Coracina novaehollandiae* (Black-faced Cuckoo-shrike) Marine *EPBC Act 1999*;
-*Apus pacificus* (Fork-tailed Swift), Migratory *EPBC Act 1999*;
-Ardea alba (Great Egret), Migratory *EPBC Act 1999*;
-Leipoa ocellata (Malleefowl), Schedule 1 *Wildlife Conservation Act 1950*;
-*Morelia spilota imbricata* (Carpet Python), Schedule 4 *Wildlife Conservation Act 1950*;
-*Falco peregrinus* (Peregrine Falcon) listed Schedule 4 *Wildlife Conservation Act 1950*;
-*Paroploocephalus atrciceps* (Lake Cronin Snake), DEC Priority 3;
-*Oreoica gutturalis* (Crested Bellbird), DEC Priority 4;
-*Oreoica gutturalis gutturalis* (Crested Bellbird-Southern); DEC Priority 4; and
-*Falco hypoleucos* (Grey Falcon), DEC Priority 4.

Three broad habitat types have been identified within the survey area by GHD (2010). These are: mixed woodland over mixed shrubs; rehabilitated areas; and cleared areas.The mixed woodland over mixed shrubs habitat is considered to provide a high level of habitat value as a result of good structural diversity with medium sized trees and a healthy understory of shrubs (GHD, 2010) while the rehabilitated and cleared areas are considered to offer low to little habitat value (GHD, 2010). The mixed woodland over mixed shrubs habitat is considered to be common and widespread within the region (GHD, 2010).

Conservation significant species such as the Rainbow Bee-eater, Black-faced Cuckoo-shrike, Crested Bellbird, and the Crested Bellbird-Southern will be able to move quickly from the application area upon clearing to adjacent vegetated areas (GHD, 2010).

The Carpet Python was not observed during the fauna survey, however, the Environmental Co-ordinator for the Higginsville Mine Site has observed this species occasionally within the Higginsville operational area which is in the western extent of the application area (GHD, 2010). This species has been recorded in semi-arid and inland habitats, Banksia woodland, Eucalypt woodlands and grasslands (Department of Environment and Conservation, 2009). This species is generally uncommon but has a wide distribution (GHD, 2010). If this species is disturbed as a result of clearing it is likely to move to similar vegetation adjacent to the application area (GHD, 2010). The loss of habitat is not likely to impact on the conservation of this species overall but may have a localised impact.

Aerial imagery demonstrates that the most eastern and western edges of the application area are situated adjacent to highly degraded areas which are being utilised for mining related purposes (i.e. an open pit, waste dump and access tracks) (GIS Database, 2010). The proximity to existing mine infrastructure could also be considered to act as a deterrent to many native fauna species, thereby minimising the potential for these species to frequent these parts of the application area.

According to Shepherd (2009) approximately 98.4% of the pre-European vegetation remains within the Coolgardie bioregion. Given the extent of native vegetation that remains relatively uncleared within surrounding areas of the survey area (GIS Database), it is unlikely that the application area would function as a significant habitat corridor for fauna movement (GHD, 2010; GIS Database). Furthermore, it is likely that equal or higher quality vegetation and fauna habitats would exist throughout the surrounding survey area given much of the vegetation within the application area has been degraded by past mining activties (GHD, 2010).

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

Methodology
Department of Environment and Conservation (2009)
Department of Natural Resources and Environment (2002)
GHD (2010)
Shepherd (2009)
GIS Database:
- Cave Hill 1.4M Orthomosaic - Landgate 2004
- Cowan Yardina 1.4M Orthomosaic - Landgate 2001

(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 GIS databases there are no known records of Declared Rare Flora (DRF) within a fifteen kilometre radius of the application area (GIS Database).

GHD (2010) conducted a flora survey of the application area between 6 and 8 October 2010. No DRF species have been recorded within the clearing permit area (GHD, 2010) and it is therefore not likely that the area to be cleared includes, or is necessary for the continued existence of rare flora.

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

Methodology
GHD (2010)
GIS Database:
- Declared Rare and Priority Flora List

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments

Proposal is not likely to be at variance to this Principle

There are no known Threatened Ecological Communities (TEC's) which occur within the application area (GHD, 2010; GIS Database). No vegetation communities were identified as being a TEC (GHD, 2010).

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

Methodology
GHD (2010)
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 areas fall within the Coolgardie IBRA bioregion (GIS Database). Shepherd (2009) reports that approximately 98.42% of the pre-European vegetation remains in this bioregion.

The vegetation in the application area has been mapped as Beard Vegetation Association 8: Medium woodland; salmon gum and gimlet; and Beard Vegetation Association 522: Medium woodland; redwood (Eucalyptus transcontinentalis) and merrit (Eucalyptus urna) (GIS Database).

According to Shepherd (2009) approximately 98.7% of Beard Vegetation Association 8 and approximately 100% of Beard Vegetation Association 522 remains within the Coolgardie bioregion respectively (see table below). The application area falls predominantly within Beard Vegetation Association 522 (GIS Database).

According to the Bioregional Conservation Status of Ecological Vegetation Classes, the conservation status for the Pilbara Bioregion and Beard Vegetation Associations 8 and 522 is of 'Least Concern' and 'Depleted' respectively (Department of Natural Resources and Environment, 2002) (see table). Whilst Beard Vegetation Association 8 at state level remains at approximately 48.1%, this is more than the 30% threshold level recommended in the National Objectives Targets for Biodiversity Conservation below which, species loss appears to accelerate exponentially at an ecosystem level (Environmental Protection Authority, 2000).

A small percentage of the Beard Vegetation Associations within the Coolgardie bioregion are protected within conservation reserves, however, the bioregion remains largely uncleared (Shepherd, 2009). As a result, the conservation of the Beard Vegetation Associations within the bioregion is not likely to be impacted on by this proposal.

Given that the Beard Vegetation Associations are well represented locally, the vegetation within the application area is not likely to be significant as a remnant in a highly cleared landscape (GIS Database).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Coolgardie	12,912,204	12,707,872	~98.42	Least Concern	~10.8
Beard vegetation associations - State					
8	694,638	334,007	~48.1	Depleted	~6.4
522	709,715	709,713	~100	Least Concern	~4.2
Beard vegetation associations - Bioregion					
8	280,248	276,598	~98.70	Least Concern	~8.8
522	688,407	688,405	~100	Least Concern	~4.3

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

Methodology

Department of Natural Resources and Environment (2002)
Environmental Protection Authority (2000)
Shepherd (2009)
GIS Database:
- IBRA Australia 1
- 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 not likely to be at variance to this Principle

According to available databases (GIS Database) and GHD (2010) there are no permanent watercourses or wetlands within the application area.

Several lake systems are within the vicinity of the application area (GIS Database). Lake Cowan, a wetland of subregional significance (Cowan, 2001), lies approximately five kilometres to the east of the eastern extent of the application area; Chalice West Lake is located approximately four kilometres to the west of the Chalice Pit, whilst the Lake Willey System lies immediately to the west of Chalice West Lake (GHD, 2010; GIS Database). These lake systems are unlikely to be affected by the proposed clearing given the distance from the application area and the extent of intact vegetation which surrounds most of the application area (GIS Database).

Drainage lines do intersect the western and middle portion of the application area (GHD, 2010; GIS Database), however, all of these drainage lines are poorly defined and are only likely to flow following major rainfall events (GHD, 2010).

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

Methodology
Cowan (2001)
GHD (2010)
GIS Database:
- Hydrography, linear

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

Comments

Proposal is not likely to be at variance to this Principle

The application area is located within the Kambalda Soil-Landscape Zone (Tille, 2006). This zone is characterised by flat to undulating plains (with hills, ranges and some salt lakes and stony plains) on greenstone and granitic rocks of the Yilgarn Craton (Tille, 2006). The soils in the application area consist of calcareous loamy earths and red loamy earths on the flats and shallow granitic soils on the ridges (GHD, 2010).

The application area has an annual average evaporation rate of approximately eight times the annual average rainfall (Bureau of Meteorology, 2011; GIS Database). Based on this information, surface flows during normal rainfall events are likely to be shortlived and recharge to groundwater would be considered minimal. This would reduce the likelihood of salinity increasing as a result of the proposed clearing.

There are no permanent watercourses or wetlands within the application area (GIS Database) and poorly defined drainage lines within the application area are only likely to flow following major rainfall events (GHD, 2010). It is therefore unlikely that the area will be subject to significant water erosion.

The Lake Cowan, Chalice West Lake and the Lake Willey systems are located approximately four to five kilometres from the application area (GHD, 2010; GIS Database). Given the distance to these lake systems and considering that this buffer is reasonably vegetated, the proposed clearing is not likely to exacerbate land degradation issues such as waterlogging or sheetflow more than would be expected during normal and higher rainfall events.

The application area spans a distance of approximately 30 kilometres and much of the topography is relatively subdued (GHD, 2010). Therefore, the proposed clearing is not expected to lead to an increase in runoff, in turn increasing erosion. Given the proposed clearing is reasonably narrow (30 metres) and linear in nature, clearing is unlikely to cause appreciable land degradation.

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

Methodology
Bureau of Meteorology (2011)
GHD (2011)
Tille (2006)
GIS Database:
- Evaporation Isopleths
- Hydrology, linear

(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

No conservation areas occur within the immediate vicinity of the application area (GHD, 2010; GIS Database).The nearest conservation estate is the Binoronca Rock Nature Reserve (Reserve No 32552) (GHD, 2010) which is located approximately four kilometres north of the north-eastern extent of the application area (GIS Database). Given the distance between the application area and the nearest conservation area, the proposed clearing is not likely to impact on the conservation values of the Binoronca Rock Nature Reserve.

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

Methodology GHD (2010)
GIS Database:
- DEC Tenure (Category)

(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**
The application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database).

Average rainfall for the local area is approximately 297 millimetres per year (Bureau of Meteorology, 2011). Given the area experiences a pan evaporation rate of approximately 2400 millimetres per year (GIS Database), approximately eight times the average annual rainfall, there is likely to be little surface water flow during normal seasonal rains.

There are no permanent watercourses or wetlands within the application area (GIS Database). Drainage lines present within the application area are poorly defined and surface water flow is only likely to occur following major rainfall events (GHD, 2010). The groundwater within the application area is 'saline' with levels between 14,000 to 35,000 milligrams per litre Total Dissolved Solids (TDS) (GIS Database). Given the groundwater is already saline and a number of salt lake systems are located approximately four to five kilometres from the application area, it is unlikely the removal of native vegetation will alter the existing groundwater quality.

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

Methodology GHD (2010)
GIS Database
- Evaporation Isopleths
- Groundwater Salinity, Statewide
- Hydrography, linear
- Public Drinking Water Source Areas

(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 in the Coolgardie bioregion and experiences hot summers and mild wet winters (Australian Natural Resource Atlas, 2011).

Rainfall patterns are typically associated with cold fronts in winter with thunderstorms and rain bearing depressions occurring in summer (McKenzie and Hall 1992, cited in GHD, 2010). Average annual rainfall for the application area is relatively low at 297 millimetres (Bureau of Meteorology, 2011). The average annual evaporation rate of 2400 millimetres (GIS Database) is approximately eight times the average annual rainfall and any surface water resulting from normal rainfall events is likely to be relatively short lived.

There are no permanent watercourses within the application area (GHD, 2010). While drainage lines are present within the application area these are poorly defined and only likely to flow following major rainfall events (GHD, 2010).

The application area is within the Lake Lefroy catchment area which covers 2,488,250 hectares (GIS Database). Given the application area is surrounded by intact tracts of native vegetation (GIS Database), and the area of proposed clearing (93.06 hectares) in relation to the total catchment area (2,2488,250 hectares), the proposed clearing is not likely to increase the incidence or intensity of flooding.

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

Methodology ANRA (2011)
Bureau of Meteorology (2011)
GHD (2010)
GIS database:
- Hydrography, catchments
- Hydrography, linear

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

Comments

There is one native title claim over the application area. This claim (WC99-2) has been registered with the National Native Title Tribunal on behalf of the claimant group. 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 (ie. 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 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 Sites of Aboriginal Significance are damaged through the clearing process.

The clearing permit application was advertised on 24 January 2010 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received in relation to this application.

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 Databases:
- Aboriginal Sites of Significance
- Native Title Determined
- Native Title Federal
- Native Title NNTT

4. References

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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.