



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3898/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: BHP Billiton Iron Ore Pty Ltd

1.3. Property details

Property: Iron Ore (Mount Goldsworthy) Agreement Act 1964, Mineral Lease 249SA (AML 70/249)
Local Government Area: Shire of East Pilbara
Colloquial name: Cundaline Haul Road

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
13		Mechanical Removal	Road construction and installation of mine supporting infrastructure

1.5. Decision on application

Decision on Permit Application: Granted
Decision Date: 4 November 2010

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
<p>Beard vegetation associations have been mapped at a 1:250,000 scale for the whole of Western Australia. One Beard Vegetation Association has been mapped within the application area (GIS Database).</p> <p>93: Hummock grasslands, shrub steppe; kanji over soft spinifex.</p> <p>ENV Australia Pty Ltd conducted a field survey of the application area and the surrounding Cundaline area on 26-31 March 2008. Vegetation communities were determined from quadrat data using multivariate statistical analysis (ENV, 2008). Vegetation mapping was based on this information and maps created in the field (ENV, 2008).</p> <p>Twelve vegetation communities were identified in the greater survey area and three of these occurred within the application area:</p> <p>ChAcCf: <i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia tumida</i> var. <i>pilbarensis</i>, <i>Acacia pyrifolia</i> and <i>Acacia colei</i> var. <i>colei</i> shrubland over <i>Tephrosia</i> aff. <i>rosea</i> (HD292-37) low shrubland over <i>Triodia epactia</i> very open hummock grassland over <i>Pluchea rubelliflora</i> and <i>Stemodia grossa</i> very open herbland. This vegetation community is found in drainage lines.</p> <p>ChTe: <i>Corymbia hamersleyana</i> low open woodland over <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> shrubland over <i>Triodia epactia</i> hummock grassland. Forms in drainage lines.</p> <p>EIAiTw: <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> low open woodland over <i>Acacia inaequilatera</i> open shrubland over <i>Triodia wiseana</i> hummock grassland. Covers the slopes to the north of the Cundaline ridge (the southern section of the application area).</p>	<p>BHP Billiton Iron Ore Pty Ltd has applied to clear up to 13 hectares of native vegetation for the purpose of mineral production. Clearing is to allow for the construction of haul roads and light vehicle roads, stockpiling of topsoil and installation of mine supporting infrastructure (e.g. fibre optic cable, water pipeline, power cables). The haul road will allow access to the adjacent Cundaline Mine.</p> <p>Vegetation will be cleared by mechanical means. The topsoil and vegetation will be re-used on the adjacent Cundaline site as per the Goldsworthy Environmental Management Plan.</p>	<p>Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).</p> <p>To</p> <p>Pristine: No obvious signs of disturbance (Keighery, 1994).</p>	<p>The vegetation condition was assessed by botanists and environmental biologists from ENV Australia Pty Ltd. The vegetation conditions were described using a scale by Trudgen (1991) and have been converted to the corresponding conditions from the Keighery (1994) scale.</p>

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 may be at variance to this Principle**

The application area occurs within the Chichester subregion of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). The subregion comprises of undulating Archaean granite and basalt plains and includes significant areas of basaltic ranges (CALM, 2002). The plains support a shrub steppe characterised by *Acacia inaequilatera* over *Tridodia wiseana* hummock grasslands, while *Eucalyptus leucophloia* tree steppes occur on the ranges (CALM, 2002).

The vegetation within the application area is broadly mapped as Beard Vegetation Association 93, which is common and widespread throughout the Pilbara region, with approximately 100% of the pre-European vegetation extent remaining (Shepherd, 2007; GIS Database). A flora and vegetation survey was conducted in March 2008 of the application area and the surrounding Cundaline Mine area (ENV, 2008). The survey recorded 193 plant taxa from 91 genera belonging to 37 families (ENV, 2008). The most frequently recorded families were Poaceae, Papilionaceae and Malvaceae; the most frequently recorded genera were *Acacia* and *Euphorbia* (ENV, 2008). The vegetation communities that were mapped in the Cundaline Mine area are considered to be locally represented outside the survey area and not regionally significant (ENV, 2008).

No Declared Rare Flora, Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) were recorded within the application area or the surrounding Cundaline Mine area during the flora survey (ENV, 2008). Two Priority flora species, *Euphorbia clementii* (Priority 2) and *Goodenia nuda* (Priority 4), were recorded in the surrounding Cundaline Mine area but not in the application area (ENV, 2008). Four introduced flora species were recorded in the surrounding Cundaline Mine area but not in the application area (ENV, 2008).

Four main fauna habitats were identified in the Cundaline Mine area: drainage lines, hilltops, ridges, and slopes and plains (Outback Ecology Services, 2008). All the habitats within the Cundaline area are widely represented throughout the region and the vertebrate assemblage recorded is similar to other regional sites (Outback Ecology Services, 2008).

Systematic sampling and opportunistic survey by Ecologia in 2005 of the adjacent Cundaline Mine area recorded 11 mammals (10 native), 41 birds, 18 reptiles and 1 amphibian (Outback Ecology Services, 2008). There are numerous mapped records of fauna of conservation significance in the adjacent Cundaline Mine area and within a 100 kilometre buffer (Outback Ecological Services, 2008).

The surrounding area may contain a high level of biological diversity, particularly fauna diversity. However, the application area is relatively small, immediately adjacent to an existing light vehicle road and rail line, and in close vicinity to the disturbance boundary of Cundaline Mine (BHP Billiton Iron Ore, 2010).

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

Methodology BHP Billiton Iron Ore (2010)
CALM (2002)
ENV (2008)
Outback Ecology Services (2008)
Shepherd (2007)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Pre-European Vegetation

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments **Proposal is not likely to be at variance to this Principle**

The application area is part of the Cundaline Mine and immediately adjacent to the Cundaline Mine disturbance area that was formally assessed and approved by the EPA (BHP Billiton Iron Ore, 2010). The EPA set the level of assessment for the proposal at Environmental Protection Statement and considered that the project could be managed to meet the EPA's environmental objectives (EPA, 2009). Fauna was listed as one of the key environmental factors relevant to the proposal. The impact on fauna would primarily be through loss or modification of habitat, with possible impacts from light, noise and increases in introduced fauna (EPA, 2009).

A targeted fauna assessment of the greater Cundaline Mine area was undertaken by Outback Ecology Services in 2008 (Outback Ecology Services, 2008). It incorporated previous vertebrate surveys by Ecologia of the Cundaline Mine area, terrestrial invertebrate short-range endemic surveys undertaken by ENV and Outback Ecology Services, and a database and literature review (Outback Ecology Services, 2008).

Four main fauna habitats were identified in the Cundaline Mine area: drainage lines, hilltops, ridges, and slopes and plains (Outback Ecology Services, 2008). All the habitats within the Cundaline area are widely represented throughout the region (Outback Ecology Services, 2008).

The vertebrate fauna assemblage is similar to other regional sites and no short-range endemic invertebrate fauna was identified during targeted field surveys (Outback Ecology Services, 2008).

Surveys for subterranean fauna were undertaken in the Cundaline Mine area (EPA, 2009). Stygofauna that were identified within the mine area were also identified outside the mine disturbance area so stygofauna populations are not considered at risk from the proposed disturbance (EPA, 2009). The proposed clearing application area has not been mapped as potential troglofauna habitat (EPA, 2009).

Three threatened fauna species were recorded in the Cundaline Mine area and another threatened species has been recorded in the greater Goldsworthy area (Outback Ecology Services, 2008). These species are the Northern Quoll (*Dasyurus hallucatus*), Peregrine Falcon (*Falco peregrinus*), Pilbara Leaf-nosed Bat (*Rhinonicterus aurantia*) and Pilbara Olive Python (*Liasis olivaceus barroni*) (Outback Ecology Services, 2008).

The threatened species recorded in the Cundaline Mine area are not expected to be significantly impacted by the proposed clearing due to the small size of the application area and the mobility of the species (BHP Billiton Iron Ore, 2010). The Northern Quoll is most common on dissected rocky escarpment and occasionally in eucalypt forest and woodland (Van Dyck and Strahan, 2008). It is highly mobile with individual animals occupying large territories and utilising multiple dens (Van Dyck and Strahan, 2008). This species was recorded in the greater Goldsworthy area but not in Cundaline (Outback Ecology Services, 2008). The Peregrine Falcon is widespread and inhabits mainly cliffs along coasts, rivers and ranges, and wooded watercourses and lakes (Johnstone and Storr, 1998). The Pilbara Leaf-nosed Bat roosts in humid caves and old mine shafts (Burbidge, 2004) and suitable roosting caves are not present in the application area (BHP Billiton Iron Ore, 2010). The Pilbara Olive Python is a widespread species in the Pilbara and its habitat occurs in the wider area (Outback Ecology Services, 2008).

Three DEC-listed Priority fauna species have been recorded in the Cundaline Mine area: Australian Bustard (*Ardeotis australis*), Ghost Bat (*Macroderma gigas*) and Western Pebble-mound Mouse (*Pseudomys chapmani*) (Outback Ecology Services, 2008). The Australian Bustard and Ghost Bat are mobile animals and all three species are reported to utilise diverse and/or widespread habitats (Outback Ecology Services, 2008). Therefore the impacts to these species from the proposed clearing are considered to be minimal.

A further six Priority fauna species were identified as possibly occurring within the Cundaline Mine area. These were detected by the desktop search as having occurred within a 100 kilometre buffer of the mine area, but they were not detected during field surveys (Outback Ecology Services, 2008).

There were four other threatened or Priority fauna species detected through a desktop search as having occurred within a 100 kilometre buffer of the Cundaline Mine area but were unlikely to occur within the mine area. They were Great Desert Skink (*Egernia kintorei*), Greater Bilby (*Macrotis lagotis*), Northern Marsupial Mole (*Notoryctes caurinus*) and Princess Parrot (*Polytelis alexandrae*) (Outback Ecology Services, 2008). These species were not found during the field surveys and are considered unlikely to occur in the Cundaline Mine area (Outback Ecology Services, 2008).

BHP Billiton Iron Ore have stated that any construction in the application area will be conducted in accordance with the Goldsworthy Environmental Management Plan Revision 4 (BHP Billiton Iron Ore, 2010). This includes fauna management practices, separate Significant Species Management Plans, and a Management Plan for Bat Species (BHP Billiton Iron Ore, 2009). BHP Billiton Iron Ore (2010) have also stated that speed limits will be imposed on the roads to minimise the incidence of vehicle strikes.

Although the application area may provide habitat for native fauna, it is unlikely to be significant habitat for the following reasons:

- similar habitat is widespread throughout the region;
- the broad distribution and/or mobility of many of the species;
- there is disturbance adjacent to the application area from an existing light vehicle road;
- the small size of the application area (BHP Billiton Iron Ore, 2010).

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

Methodology BHP Billiton Iron Ore (2009)
BHP Billiton Iron Ore (2010)
Burbidge (2004)
EPA (2009)
Johnstone and Storr (1998)
Outback Ecology Services (2008)
Van Dyck and Strahan (2008)

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Comments **Proposal is not likely to be at variance to this Principle**
According to available databases there are no known records of Declared Rare Flora (DRF) within the application area (GIS Database).

A flora and vegetation survey of the application area and the surrounding Cundaline area was conducted by ENV botanists and environmental biologists on 26-31 March 2008. No DRF species were recorded within the application area or the greater survey area (ENV, 2008).

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

Methodology ENV (2008)
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**
A search of available databases revealed that there are no known Threatened Ecological Communities (TECs) within the application area (GIS Database). The nearest recorded TEC is located 145 kilometres north-east of the application area (GIS Database).

No TECs were identified during the flora and vegetation survey by ENV (2008).

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

Methodology ENV (2008)
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 clearing application area falls within the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) region in which approximately 99.9% of the pre-European vegetation remains (see table) (GIS database; Shepherd, 2007). This gives it a conservation status of "Least Concern" according to the Bioregional Conservation Status of Ecological Vegetation Classes (Department of Natural Resources and Environment, 2002).

The vegetation of the clearing application area has been mapped as Beard Vegetation Association 93 "Hummock grasslands, shrub steppe; kanji over soft spinifex" (GIS Database). According to Shepherd (2007) approximately 100% of Beard Vegetation Association 93 remains at both the state and bioregional level (see table). This vegetation association would be given a conservation status of "Least Concern" at both a state and bioregional level (Department of Natural Resources and Environment, 2002).

The vegetation under application is not a remnant of vegetation in 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	17,804,188	17,794,647	~99.9	Least Concern	~6.3
Beard veg assoc. – State					
93	3,044,308	3,044,249	~100	Least Concern	~0.4
Beard veg assoc. – Bioregion					
93	3,042,113	3,042,064	~100	Least Concern	~0.4

* Shepherd (2007)

** 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)
Shepherd (2007)
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 no permanent watercourses or wetlands within the application area, however, a minor non-perennial watercourse has been mapped within 10 metres of the northern boundary of the application area (GIS Database).

The vegetation mapping by ENV in 2008 indicated that the application area contains two vegetation communities that are associated with drainage lines (ENV, 2008):

ChAcCf: *Corymbia hamersleyana* scattered low trees over *Acacia tumida* var. *pilbarensis*, *Acacia pyrifolia* and *Acacia colei* var. *colei* shrubland over *Tephrosia* aff. *rosea* (HD292-37) low shrubland over *Triodia epactia* very open hummock grassland over *Pluchea rubelliflora* and *Stemodia grossa* very open herbland. This vegetation community is found in drainage lines.

ChTe: *Corymbia hamersleyana* low open woodland over *Grevillea wickhamii* subsp. *hispidula* shrubland over *Triodia epactia* hummock grassland. Forms in drainage lines.

These vegetation communities are not unique (ENV, 2008) and minor ephemeral watercourses, and their associated vegetation, are widespread in the Pilbara bioregion (GIS Database).

The De Grey River is located approximately 11 kilometres south of the application area and is listed in the Directory of Important Wetlands in Australia (GIS Database). Due to the significant distance to the De Grey River, and the small size of the application area, the proposed clearing is not likely to impact on this important wetland.

Based on the above, the proposed clearing is at variance to this Principle. However, vegetation associated with minor drainage lines is widespread in the region, and the small area of the proposed clearing is unlikely to have any significant impact on any watercourse or wetland.

Methodology ENV (2008)
GIS Database:
- ANCA, Wetlands
- Hydrography, Linear

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

Comments Proposal is not likely to be at variance to this Principle

According to available datasets the application area is within the Rocklea Land System (GIS Database). The Rocklea Land System is characterised by basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex (and occasionally soft spinifex) grasslands (Van Vreeswyk et al., 2004). Van Vreeswyk et al. (2004) report that this system has a very low erosion risk.

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

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

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

Comments Proposal is not likely to be at variance to this Principle

The proposed clearing is not located within a conservation reserve (GIS Database). The nearest conservation area is Eighty Mile Beach, which is located 70 kilometres north of the application area (GIS Database). Eighty Mile Beach is an important feeding and nesting site for migratory birds (Department of Sustainability, Environment, Water, Population and Communities, 2010). Given the different habitat types and the large distance separating the locations, the application area would not provide an important ecological linkage.

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

Methodology Department of Sustainability, Environment, Water, Population and Communities (2010)
GIS Database:
- DEC Tenure
- Register of National Estate (Status)

(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). The nearest PDWSA is De Grey River Water Reserve which is located approximately 46 kilometres west of the application area (GIS Database). The proposed clearing is unlikely to affect the water quality of the water reserve due to the large distance between it and the application area.

There are no permanent watercourses or wetlands within the application area (GIS Database). There are a few minor, non-perennial drainage lines within the application area (GIS Database). The proposed clearing is unlikely to cause deterioration in the quality of surface water in the local area.

The application area is adjacent to the Cundaline Mine area that was assessed and approved by the EPA (BHP Billiton Iron Ore, 2010). There were no groundwater dependent vegetation associations within that proposal area and the EPA did not consider impacts to groundwater a key issue in their assessment (EPA, 2009). The small area of the proposed clearing is unlikely to cause deterioration in the quality of underground water.

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

Methodology BHP Billiton Iron Ore (2010)
EPA (2009)
GIS Database:
- 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 within the De Grey River catchment area (GIS Database). Given the size of the area to be cleared (13 hectares) in relation to the size of the catchment area (845,936 hectares) (GIS Database), the proposed clearing is not likely to increase the potential of flooding on a local or catchment scale.

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

Methodology GIS Database:
- Hydrographic Catchments - Catchments

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

Comments

The clearing permit application was advertised on 23 August 2010 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received.

There is one Native Title Claim (WC99/8) over the area under application (GIS Database). This claim 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 (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*.

There are no registered Aboriginal Sites of Significance within the application area (GIS Database). The nearest registered Aboriginal Site of Significance is located approximately 250 metres south-west of 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 NNTT

4. References

- BHP Billiton Iron Ore (2009) Goldworthy Environmental Management Plan Revision 4. Report by BHP Billiton Iron Ore, August 2009.
- BHP Billiton Iron Ore (2010) Cundaline Haul Road: Application to Clear Native Vegetation (Purpose Permit) under the *Environmental Protection Act 1986*. Unpublished report by BHP Billiton Iron Ore, August 2010.
- Burbidge (2004) Threatened Animals of Western Australia. Department of Conservation and Land Management, Kensington, Western Australia.
- Department of Conservation and Land Management (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions.
- 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.
- Department of Sustainability, Environment, Water, Population and Communities (2010) Australian Heritage Database, Eighty Mile Beach. http://www.environment.gov.au/cgi-bin/ahdb/search.pl?mode=place_detail;place_id=18107 (Accessed 11 October 2010).
- ENV (2008) Goldworthy Iron Ore Mining Operations - Cundaline and Callawa Mining Operations Flora and Vegetation Assessment. Unpublished report for BHP Billiton Iron Ore Pty Ltd, Prepared by ENV Australia Pty Ltd, October 2008.
- EPA (2009) Cundaline and Callawa Mining Operations, BHP Billiton Iron Ore - Report and Recommendations of the Environmental Protection Authority. Report 1338. Perth, Western Australia.
- Johnstone, R.E. and Storr, G.M. (1998) Handbook of Western Australian Birds, Volume 1 - Non-Passerines (Emu to Dollarbird). Western Australian Museum, 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.
- Outback Ecology Services (2008) Goldworthy Iron Ore Mining Operations - Cundaline and Callawa Mining Operations Targeted Fauna Assessment. Unpublished report for BHP Billiton Iron Ore Pty Ltd, Prepared by Outback Ecology Services, October 2008.
- Shepherd, D.P. (2007) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.
- Van Dyck, S. and Strahan, R. (2008) The Mammals of Australia, Third Edition. Reed New Holland, Sydney.
- Van Vreeswyk, A.M.E., Payne, A.L., Leighton, K.A. and Hennig, P. (2004) Technical Bulletin - An Inventory and Condition Survey of the Pilbara region, Western Australia, No 92, Department of Agriculture, Government of Western Australia, 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: <ul style="list-style-type: none"> (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: <ul style="list-style-type: none"> (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.