



## 1. Application details

### 1.1. Permit application details

Permit application No.: 2754/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Western Areas NL

### 1.3. Property details

Property: Mining Lease 74/58  
Local Government Area: Shire of Kondinin  
Colloquial name: Digger Rocks Nickel Project

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.3		Mechanical Removal	Road Construction and Maintenance

## 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, and are a useful tool to examine the vegetation extent in a regional context. Two Beard vegetation associations are located within the application area (GIS Database):</p> <p><b>516</b>; shrublands; Mallee scrub, black marlock; and</p> <p><b>1413</b>; shrublands; Acacia, Casuarina &amp; Melaleuca thicket.</p> <p>Botanica Consulting (2008) conducted a flora and vegetation survey of the application area in April 2008. The vegetation type within the application area was described as:</p> <p><b>Rehabilitated vegetation</b>; species present include, <i>Angianthus tomentosa</i>, <i>Olearia muelleri</i>, <i>Eucalyptus flocktoniae</i> ssp. <i>flocktoniae</i>, <i>Eucalyptus salubris</i>, <i>Eucalyptus annulata</i>, <i>Eucalyptus salmonophloia</i>, <i>Acacia deficiens</i>, <i>Acacia erinacea</i>, <i>Acacia hemiteles</i>, <i>Melaleuca adnata</i>, <i>Daviedia namatophylla</i>, <i>Dodonaea bursariifolia</i> and <i>Dodonaea viscosa</i>.</p>	<p>Western Areas NL (Western Areas) proposes to clear 0.3 hectares of native vegetation within a purpose permit boundary totalling approximately 0.44 hectares (Western Areas, 2008). The proposed clearing is for the construction of a haul road on Mining Lease 74/58 (Western Areas, 2008).</p>	<p>Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994)</p>	<p>The vegetation condition of the application area has been derived from the vegetation description provided by Botanica Consulting (2008) and aerial photography viewed by the assessing officer.</p> <p>One weed species was recorded within the application area; Maltese Cockspur (<i>Centuarea melitensis</i>). This species is not a Declared Plant as listed with the Department of Agriculture and Food (2008).</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 is not likely to be at variance to this Principle**  
The application area is located approximately 80 kilometres east of Hyden, within the Western Mallee subregion of the Mallee Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database).

This subregion is characterised by clays and silts underlain by kankar, exposed granite, sandplains, isolated

uplands of laterite pavements and salt lake systems (on a granite basement) (CALM, 2002). Mallee communities can be found on a variety of surfaces and Eucalyptus woodlands occur mainly on fine-textured soils, with scrub-heath on sands and laterite (CALM, 2002). Mallees over Myrtaceous-Proteaceous heaths on duplex (sand over clay) soils are common (CALM, 2002). Melaleuca shrublands characterise alluvia, and Halosarcia low shrublands occur on saline alluvium (CALM, 2002). A mosaic of mixed Eucalyptus woodlands and Mallee occur on calcareous earth plains and sandplains overlying Eocene limestone strata in the east (CALM, 2002).

The subregion shows a very high degree of endemism, particularly in the Proteaceae family (632 spp, 99% endemic; 16 genera, 5 endemic), and especially the genera *Grevillea* and *Hakea* (CALM, 2002). Eucalyptus, *Acacia*, *Dryandra* and *Asteraceae* also contain very high numbers of endemics (CALM, 2002).

The application area has historically been used as a haul road for the Digger Rocks underground nickel mine. Since the closure of the Digger Rocks mine in the late 1990's several sites have been rehabilitated (Western Areas, 2008). The application area was rehabilitated in 2000-2001 and thus consists of seven - eight year old rehabilitation (Western Areas, 2008).

Within the rehabilitated areas on site (0.67 hectares), a total of 19 families, 39 genera and 71 species were identified (Botanica Consulting, 2008). This is a relatively low level of speciation when compared to the surrounding vegetation. Within the local area (358 hectares) 41 families, 93 genera and 228 species have been recorded (Botanica Consulting, 2008). This would indicate that the application area contains lower floristic diversity than surrounding vegetation.

Eight individuals of the species *Banksia sphaerocarpa* var. *dolichostyla* (Declared Rare Flora) were recorded within 50 metres of the proposed disturbance site (Western Areas, 2008). Seven of these plants are growing in previously uncleared vegetation and one is growing on the side of a current road. None of the eight plants will be directly impacted by this proposal (Western Areas, 2008).

One weed species was recorded within the application area, Maltese Cockspur (*Centuarea melitensis*) (Botanica Consulting, 2008). This species is not a Declared Plant as listed with the Department of Agriculture and Food (2008). Should the Permit be granted, to minimise the introduction and spread of weeds it is recommended a weed management condition be placed on the Permit.

More than 35 percent of the Mallee bioregion's original mammal fauna is now regionally extinct (CALM, 2002). This is mainly due to the extensive land clearing that has occurred. The application area is suitable foraging habitat for up to 20 conservation significant fauna species (Biota, 2007), however, given the young age of the vegetation it is unlikely to represent breeding habitat for these species.

Although this clearing permit application falls within an area noted for its high floristic diversity, the application area itself does not support high floristic diversity due to the very young age of the vegetation and historical disturbance.

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

**Methodology** Botanica Consulting (2008)  
CALM (2002)  
Western Areas (2008)  
GIS Database:  
-Interim Biographic Regionalisation for Australia

**(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**

Biota Environmental Science (Biota) was commissioned by Western Areas to conduct a Level 2 fauna assessment over a 70 hectare area surrounding the application area (Biota, 2007). The survey aimed to describe the fauna habitats present, identify any conservation significant habitats, record the fauna assemblage from both desktop database searches and field survey, identify fauna of conservation significance and provide recommendations for the management of perceived impacts to fauna (Biota, 2007). The survey and subsequent report adequately meet the requirements of Environmental Protection Authority (EPA) Guidance Statement 56 "Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia" (EPA, 2004b).

The fauna survey recorded 28 Herpetofauna, 45 Avian and 16 Mammal species (Biota, 2007). Three potential short range endemic species were also recorded during the survey, however, not within the application area (Biota, 2007).

Five species of Schedule and Priority fauna were recorded during the Biota (2007) fauna survey:

- The Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) - listed as Schedule 1 - fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*;
- Western Rosella (*Platycercus icterotis*) - listed as Schedule 1 - fauna that is rare or likely to become

- extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*;
- Western Brush Wallaby (*Macropus irma*) - listed as Priority 4 with the Department of Environment and Conservation (DEC);
- White Browed Babbler (*Promatostomus superciliosus*) - listed as Priority 4 with the DEC; and
- Shy Groundwren (*Hylacola cauta*) - listed as Priority 4 with the DEC.

Searches of the DEC's Threatened Fauna Database and the Western Australian Museums Faunabase database conducted by Biota revealed 20 species of conservation significant fauna that could potentially occur in survey area (Biota, 2007).

The application area has historically been used as a haul road for the Digger Rocks underground nickel mine. Since the closure of the Digger Rocks mine in the late 1990's several sites have been rehabilitated (Western Areas, 2008). The application area was rehabilitated in 2000-2001 and thus consists of seven - eight year old rehabilitation (Western Areas, 2008).

The relatively young age of the vegetation means limited fauna habitats would be present in the application area. Areas surrounding the application area which have not been cleared would provide more suitable habitat for fauna species indigenous to Western Australia.

The assessing officer does not consider the vegetation within the application area to be significant habitat for fauna.

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

**Methodology** Biota (2007)  
EPA (2004b)  
Western Areas (2008)

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

**Comments Proposal is at variance to this Principle**

Botanica Consulting (2008) conducted a flora and vegetation survey over a 365 hectare area, including and surrounding the application area. This survey involved a desktop search of DEC's Threatened Flora database and the Western Australian Herbarium Florabase database for Declared Rare Flora (DRF) or Priority flora species within known coordinates which include the application area. A field search for rare flora was then conducted for these species in suitable habitat types within the survey area (Botanica Consulting, 2008). Botanica Consulting (2008) also mapped vegetation communities within the application area and assessed the vegetation condition. The surveys and subsequent reports adequately meet the requirements of EPA Guidance Statement 51 "Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia" (EPA, 2004a).

Eight individual plants of the DRF *Banksia sphaerocarpa var. dolichostyla* (listed as DRF, pursuant to subsection (2) of section 23F of the *Wildlife Conservation Act 1950*) were found in undisturbed Eucalyptus woodland within 50 metres of the application area (Western Areas, 2008). Seven of these plants are growing in previously uncleared vegetation and one is growing on the side of a current road. None of the eight plants will be directly impacted by this proposal (Western Areas, 2008).

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

Although DRF occur in close proximity to the application area, the application area has historically been used as a haul road for the Digger Rocks underground nickel mine. Since the closure of the Digger Rocks mine in the late 1990's several sites have been rehabilitated (Western Areas, 2008). The application area was rehabilitated in 2000-2001 and thus consists of seven - eight year old rehabilitation (Western Areas, 2008).

In order to minimise any potential impacts to the DRF in the close proximity to the application area, the following management practices will be implemented by Western Areas (2008):

- Clearing will be restricted to previously disturbed areas;
- Clearing will be kept to a minimum required to allow installation of the haul road;
- Locations of DRF will be clearly marked on site and GIS databases, and employees notified so as to reduce risk of damage to these species.
- Environmental officers will be on site during clearing operations to ensure no DRF species are impacted; and
- The layout of infrastructure has been planned to avoid disturbance of DRF species.

The relatively young age of the vegetation means it is unlikely to be necessary for the continued existence of rare flora, particularly given known DRF have all been recorded within areas of previously undisturbed vegetation. Vegetation surrounding the application area which has not been cleared is likely to provide much more suitable habitat for rare flora species indigenous to Western Australia.

No other species of conservation significance flora were recorded within the application area (Botanica

Consulting, 2008).

**Methodology** Botanica Consulting (2008)  
EPA (2004a)  
Western Areas (2008)

**(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 reveals there are no Threatened Ecological Communities (TEC) within the application area (GIS Database). The nearest TEC is located approximately 80 kilometres to the north (Parker Range System) (GIS Database).

The vegetation type identified by Botanica Consulting (2008) within the application area is not considered to be a TEC or an ecological community at risk.

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

**Methodology** Botanica Consulting (2008)  
GIS Database:  
- Threatened Ecological Communities

**(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 likely to be at variance to this Principle**

The application area is within the Western Mallee subregion of the Mallee Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). The subregion falls largely within the Intensive Landuse Zone and remains at approximately 33 percent of its pre-European vegetation extent, however, a small proportion still remains in the Extensive Landuse Zone (Shepherd et al., 2001). This gives the Western Mallee IBRA Subregion a conservation status of "Depleted" according to the Bioregional Conservation Status of Ecological Vegetation Classes (Department of Natural Resources and Environment, 2002).

The application area falls within the Shire of Kondinin (GIS Database). The Shire of Kondinin is within the Extensive Land Use Zone of the south-west of Western Australia which has been largely uncleared. Currently approximately 50 percent of the pre-European vegetation extent remains within the Shire (Shepherd et al., 2001). This places the Shire at 'Least Concern' according to the Bioregional Conservation Status of Ecological Vegetation Classes (Department of Natural Resources and Environment, 2002).

Two Beard vegetation associations were located within the application area; 516 and 1413 (GIS Database). Within the subregion, there is approximately six percent of the pre-European vegetation extent remaining of Beard vegetation association 516 and approximately 96 percent of Beard vegetation association 1413 (Shepherd et al., 2001). Both vegetation types are represented in IUCN Class I-IV Reserves within both the bioregion and the State (refer to table below).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation status**	% of Pre-European area in IUCN Class I-IV Reserves (and current %)
IBRA Bioregion – Mallee	7,395,902	4,017,868	~54	Least Concern	~18 (31)
IBRA Subregion – Western Mallee	3,981,720	1,307,541	~33	Depleted	~10 (25)
Local Government – Kondinin	737,192	369,708	~50	Depleted	N/A
<b>Beard veg assoc. – State</b>					
516	607,436	343,303	~56	Least Concern	~24 (42)
1413	1,679,930	1,247,090	~74	Least Concern	~12 (16)
<b>Beard veg assoc. – Bioregion</b>					
516	288,181	114,899	~40	Depleted	~19 (48)
1413	42,068	40,297	~96	Least Concern	~5 (5)
<b>Beard veg assoc. – Subregion</b>					
516	67,119	4,159	~6	Vulnerable	~1 (9)
1413	16,603	15,982	~96	Least Concern	~6 (6)

\* Shepherd et al. (2001) updated 2005

Whilst the subregion has been significantly cleared, the proposed clearing of 0.3 hectares of rehabilitated vegetation will not reduce the extent of Beard vegetation associations 516 or 1413 below current levels. The temporary loss of 0.3 hectares of native vegetation is not likely to affect the remnant vegetation's biological function.

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

**Methodology** Department of Natural Resources and Environment (2002)  
Shepherd et al. (2001)  
GIS Database:  
- Interim Biogeographic Regionalisation of Australia  
- Interim Biogeographic Regionalisation of Australia (subregion)  
- 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 at variance to this Principle**  
According to available databases, there are no watercourses, drainage lines or wetlands within the application area (GIS Database).

The vegetation type identified by Botanica Consulting (2008) does not comprise riparian vegetation.

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

**Methodology** Botanica Consulting (2008)  
GIS Database:  
- Hydrography, linear (hierarchy)  
- Hydrography, linear (hyd type)

**(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 proposed clearing is for the purpose of constructing a haul road. Land is proposed to be cleared of all vegetation and maintained in a condition which is suitable for vehicles to utilise (Western Areas, 2008). Management practices implemented to maintain the road in operational condition will help prevent land degradation issues such as wind or water erosion (Western Areas, 2008).

The application area is relatively small totalling 0.3 of a hectare (Western Areas, 2008) and has a slight topography (GIS Database, 2008), reducing the potential for land degradation.

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

**Methodology** Western Areas (2008)  
GIS Database:  
- Topography Contours

**(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 nearest Department of Environment and Conservation managed area is the Class "A" Jackson Nature Reserve, located approximately 11 kilometres south-east of the application area (GIS Database).

The distance between the reserve and the application area is considered adequate for the separation of these activities and it is unlikely that the proposed clearing will impact on the environmental values of the conservation reserve.

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

**Methodology** GIS Database:  
-CALM Managed Lands and Waters

**(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 (GIS Database).

The area receives an average rainfall of approximately 400 millimetres per year (Bureau of Meteorology, 2008) and experiences a pan evaporation rate of 2200 millimetres per year (GIS database). Therefore, there is likely to be little surface water flow during normal seasonal rains. Sedimentation or turbidity of waterbodies is not likely as there are no permanent water bodies within the application area or its vicinity.

Groundwater in the area has been measured at between 42,000 to 53,000 milligrams per litre of Total Dissolved Solids (TDS) (Rockwater, 2007). This groundwater is located between eight metres (cleared farmland) and 50 metres (near Digger Rocks mine site) below the surface (Western Areas, 2008; Rockwater, 2007). Vegetation is not dependant on groundwater at this depth and at such hypersaline levels.

The low rainfall and high evaporation rates mentioned above suggest that the clearing of 0.3 hectares of vegetation is not likely to raise groundwater levels in the area.

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

**Methodology** Bureau of Meteorology (2008)  
Rockwater (2007)  
Luke et al (1987)  
Western Areas (2008)  
GIS Database:  
- Ground Water Salinity Statewide  
- Hydrographic Catchments  
- Public Drinking Water Source Area

**(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**  
Geoscience Australia (2008) attributes four major factors which influence inland flooding. These include:

- Intensity and duration of rainfall over a catchment area;
- The capacity of the watercourses to network and convey runoff;
- The percentage of vegetation cover; and
- The topography.

Based on the four factors listed above, clearing within the application area is unlikely to exacerbate or increase the incidence or intensity of flooding for the following reasons:

- The application area has a climate with a winter predominant rainfall pattern averaging approximately 400 millimetres per annum (Bureau of Meteorology, 2008; GIS database), and a high average annual evaporation rate exceeding the average annual rainfall by more than five times (approximately 2,200 millimetres) (GIS Database);
- The Swan-Avon Lockhart catchment area totals 94,278 hectares in size (GIS Database). Given the small size (0.3 hectares) of the proposed clearing in relation to the large size of the catchment area, it is unlikely to result in an appreciable increase in runoff;
- Vegetation cover immediately surrounding the application area is high and is composed of rehabilitated and native vegetation (Botanica Consulting, 2008), slowing water movements and increasing water infiltration and absorption; and
- The topography of the application area is slight with a slow descent from north-west to south-east (20 metre drop over one kilometre) (GIS Database). Water movements across land during significant rainfall events are expected to be slow allowing infiltration and reducing mass transition of water to lower areas. Furthermore, soil types in the local area have been described as red sandy soils with mottled yellow clayey subsoils, which aid in infiltration (Western Areas, 2008)

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

**Methodology** Botanica Consulting (2008)  
Bureau of Meteorology (2008)  
Geoscience Australia (2008)  
Western Areas (2008)  
GIS Database:  
- Evaporation Isopleths  
- Hydrographic Catchments  
- Rainfall, Mean Annual

- Topography Contours, Statewide

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

### Comments

The application area is not subject to any Native Title Claims (GIS Database).

There are no known 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.

No submissions were received in relation to this proposal.

**Methodology** GIS Database:  
- Aboriginal Sites of Significance  
- Native Title Claims

## 4. Assessor's comments

### Comment

The proposal has been assessed against the clearing principles and is not likely to be at variance to Principles (a), (b), (d), (e), (g), (h), (i) and (j), is not at variance to Principle (f) and is at variance to Principle (c).

Should the permit be granted, it is recommended that conditions be imposed on the permit for the purposes of record keeping, permit reporting and weed management.

## 5. References

- Biota Environmental Consulting (2007) Digger South Fauna Monitoring Survey, Phase 1, May 2007, Perth, WA.
- Botanica Consulting (2008) Flora and Vegetation Survey of Digger Rocks and the RT Pipeline Corridor (M74/57, M74/58, M74/90), Unpublished report prepared for Western Areas NL, April 2008, Boulder, Western Australia.
- Bureau of Meteorology (2008). [http://www.bom.gov.au/climate/averages/tables/cw\\_010568.shtml](http://www.bom.gov.au/climate/averages/tables/cw_010568.shtml) Bureau of Meteorology.
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Department of Conservation and Land Management.
- Department of Agriculture (2008). Agriculture and related resources protection act, 1976. Declared Plants. [online] Available at: [http://www.agric.wa.gov.au/content/PW/WEED/DECIP/200712\\_declaredplants.pdf](http://www.agric.wa.gov.au/content/PW/WEED/DECIP/200712_declaredplants.pdf), accessed 04/06/08.
- 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.
- EPA (2004a) Guidance for the Assessment of Environmental Factors - Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia. Guidance Statement No 51. Environmental Protection Authority, Western Australia.
- EPA (2004b) Guidance for the Assessment of Environmental Factors: Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia. Guidance Statement No 56. Environmental Protection Authority, Western Australia.
- Geoscience Australia (2008) 'What Causes Floods' Electronic source of information, viewed 15 September 2008, <http://www.ga.gov.au/hazards/flood/causes.jsp>.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Luke GJ, Burke KL and O'Brien TM (1987) Evaporation Data for Western Australia. Resource Management Technical Report No. 65. Department of Agriculture, Western Australia.
- Rockwater (2007) Groundwater Conditions at Proposed Turpin Evaporation Pond. Unpublished report prepared for Western Areas NL by Rockwater Pty Ltd.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
- Western Areas (2008) Supporting Document For the Proposed Digger Rocks Nickel Mine Haul Road Purpose Clearing Permit Application, Tenement (M74/58), Perth, WA.

## 6. Glossary

### Acronyms:

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

### 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.