



## 1. Application details

### 1.1. Permit application details

Permit application No.: 2176/1  
Permit type: Area Permit

### 1.2. Proponent details

Proponent's name: Peter Scott Connolly

### 1.3. Property details

Property: M4/208  
M4/209  
Local Government Area: Shire of Broome  
Colloquial name: Mining Leases 04/208 & 04/209

### 1.4. Application

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

## 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>The application area has been broadly mapped at a scale of 1:250,000 as:</p> <p>Corresponding with the area subject to inundation in the north of the application area - Beard Vegetation Association 73: Grasslands, short bunch grass savanna, grass; salt water grassland (<i>Sporobolus virginicus</i>); and</p> <p>Corresponding with the alluvial floodplain with low Aeolian dunes - Beard Vegetation Association 750: Shrublands, pindan; <i>Acacia tumida</i> shrubland with Grey Box (<i>Eucalyptus tectrifera</i>) &amp; Cabbage Gum (<i>Corymbia grandiflora</i>) medium woodland over Ribbon Grass (<i>Chrysopogon spp.</i>) &amp; Curly Spinifex (<i>Triodia pungens</i>) (GIS Database, Shepherd et al., 2001).</p> <p>Eighty percent of the vegetation within the application area broadly matches Beard Vegetation Association 750, low wattle scrub and low grass vegetation (Connolly, 2007).</p>	<p>Mr Peter Scott Connolly proposes to clear 13 hectares of native vegetation on Mining Leases 04/208 and 04/209 for the purposes of mineral sand production. The tenements are located approximately 7 kilometres north of Broome within the Shire of Broome (Connolly, 2007). The clearing shall be undertaken in 0.5 hectares to 1 hectare segments throughout the life of the mining, by an outsourced bulldozer contractor under the instruction of the tenement holder. Large paperbark or white gum trees in the application area shall be left untouched as well as the area underneath the tree's canopy (Connolly, 2007).</p>	<p>Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994).</p> <p>To</p> <p>Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994).</p>	<p>The condition of the vegetation within the application area has been determined through examination of aerial photography of the locality from 2000 and 2003 (GIS Database). A majority of the vegetation in the application area appears to be in a good to excellent condition. It is likely that vegetation adjacent to previously disturbed areas such as tracks and quarried land is in a degraded to poor condition.</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 proposed clearing is located within the Dampierland Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, and the Pindanland IBRA subregion (GIS database).

Kendrick and Stanley (2001) assessed the biodiversity of the Pindanland IBRA subregion in relation to landscape, ecosystem, species and genetic values. Rare features comprise:

- Numerous patches of rainforest found mainly behind the coastal primary dune system with a structure unique to the Dampier Peninsula;
- The extensive mudflats of Roebuck Bay and Eighty Mile Beach resulting from two major paleoriver systems;
- The enormous numbers of migratory birds found at Roebuck Bay and Eighty Mile Beach;

- *Keraudrenia exastia* and *Pandanus spiralis* var. *flammeus* are both declared rare flora species;
- The vast grasslands of the Roebuck Plains;
- Coastal swamps adjacent to Eighty Mile Beach; and
- Claypans support populations of the uncommon aquatic plant *Nymphaea indica*.

Rainforests are regarded as centres of endemism and refugia, and are considered to have high species and ecosystem diversity. Mangroves, riparian zones and springs are considered as 'dry' season refugia. The application area does not correspond to any of the features considered to be rare by Kendrick and Stanley (2001).

The vegetation at the site is predominantly comprised of a single, relatively uniform community, represented by Beard Vegetation Association 750: Shrublands, pindan; *Acacia tumida* shrubland with Grey Box (*Eucalyptus tectrifolia*) & Cabbage Gum (*Corymbia grandifolia*) medium woodland over Ribbon Grass (*Chrysopogon* spp.) & Curly Spinifex (*Triodia pungens*) (GIS Database, Shepherd et al., 2001). This Association is well represented in the surrounding local area.

Desktop reviews have determined that it is unlikely that Declared Rare and Priority Flora, or Threatened Ecological Communities are located within the application area. It has been determined that the vegetation to be cleared is unlikely to constitute significant habitat for fauna.

A Level 4 search of the Western Australian Herbarium's Specimen database (Western Australian Herbarium, 1998-2008) for all records within the locality of Lullfitz Drive, Broome returned a total of 47 taxa. Of these, 8 were weed species, and a desktop review of the preferred soils, habitats and invasion strategies of these weeds determined that the following 4 of these taxa have the potential to occur within the application area:

- *Cenchrus setiger* (Birdwood Grass);
- *Gomphrena celosioides* (Gomprena Weed);
- *Stylosanthes hamata* (Caribbean Stylo); and
- *Gossypium hirsutum* (Cotton).

None of these weeds are listed as Declared Plants by the Department of Agriculture (2008). However, *Cenchrus setiger* has a High rating under the Department of Environment and Conservation's (DEC) Environmental Weed Strategy (CALM, 1999) as it is highly invasive, has a wide distribution and has the ability to change the structure, composition and function of native ecosystems. It is recommended that this weed is prioritised for control. *Gomphrena celosioides* and *Gossypium hirsutum* both have a Low rating, thus requiring a low level of monitoring as they are not ranked as being invasive, having a wide distribution, or the ability to change the structure, composition and function of native ecosystems.

Based on the above, the proposed clearing is not likely to be at variance to this Principle. However, should the permit be granted it is recommended that appropriate weed management measures are implemented and rehabilitation conducted.

**Methodology** Department of Agriculture (2008)  
CALM (1999)  
Hopkins et al (2001)  
Kendrick and Stanley (2001)  
Western Australian Herbarium (1998-2008)

GIS Databases:  
Declared Rare and Priority Flora List  
Threatened Ecological Communities  
Interim Biogeographic Regionalisation of Australia\_1  
Interim Biogeographic Regionalisation of Australia (subregions)

**(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 following species are known to occur approximately within a 10 kilometre radius of the proposal area:

Common Name	Scientific Name	Conservation Status
Bilby	<i>Macrotis lagotis</i>	Schedule 1 under the <i>Wildlife Conservation (Specially Protected Fauna) Notice, 2008</i>
Peregrine Falcon	<i>Falco peregrinus</i>	Schedule 1 under the <i>Wildlife Conservation (Specially Protected Fauna) Notice, 2008</i>
Black Bittern	<i>Ixobrychus flavicollis australis</i>	Department of Environment and Conservation Priority 2
Scaly-tailed Possum	<i>Wyulda squamicaudata</i>	Department of Environment and Conservation, Priority 3

Eastern Curlew	<i>Numenius madagascariensis</i>	Department of Environment and Conservation, Priority 4
Grey Falcon	<i>Falco hypoleucos</i>	Department of Environment and Conservation, Priority 4
Princess Parrot	<i>Polytelis alexandrae</i>	Department of Environment and Conservation, Priority 4
Water-Rat [Rakali	<i>Hydromys chrysogaster</i>	Department of Environment and Conservation, Priority 4

(CAU, 2006).

Of the threatened and priority fauna species recorded within the local area, only the Eastern Curlew, Grey Falcon, Princess Parrot and one of the records of the Bilby are recent records (post 1990). The Bilby is listed as a threatened species (fauna that is rare or is likely to become extinct) under the *Wildlife Conservation (Specially Protected Fauna) Notice, 2008* and as vulnerable in the *Environment Protection and Biodiversity Conservation Act 1999*. The closest, recent (1998) record of this species was approximately 6 kilometres east of the application area (CAU, 2006).

While the vegetation to be cleared has value as fauna habitat given the close proximity of remnant vegetation to the east, west and north, and the likelihood that these areas will contain similar habitat, the application area is not likely to be considered significant for indigenous fauna.

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

**Methodology** CAU (2006)

**(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**

A review of the GIS database of Declared Rare and Priority Flora found one species within a 30 kilometres radius of the application area (GIS Database). This was the Declared Rare Flora species from the *Sterculiaceae* family, *Keraudrenia exastia*. This plant is an erect, compact, multi-stemmed shrub, 0.7 to 0.9 metres high, which flowers between April and December. It is found on red sand in pindan in coastal sites and a relict desert dune swale. As the soils of the application area are comprised of white sands, it is highly unlikely that this species is present.

A Level 4 search of the Western Australian Herbarium's Specimen database (Western Australian Herbarium, 1998-2008) for all records within the locality of Lullfitz Drive, Broome returned a total of 47 taxa. Of these, it was determined that 22 were highly likely to occur within the application area, 14 possibly could occur, and 11 were unlikely to occur within the application area. None of the taxa returned in this search were Declared Rare or Priority Flora.

While it is acknowledged that the Level 4 search reported above is not likely to have listed all species present within the locality of the application area, it can be stated that combined with the review of the Declared Rare and Priority Flora database, it is very unlikely that the vegetation to be cleared is necessary for the continued existence of rare flora.

Measures have been taken to manage the flora and vegetation of the tenement during the clearing process to assist in the rehabilitation (Connolly, 2007). Current rehabilitation practises elsewhere within Mining Leases M04/208 and M04/209 have been relatively successful. Most of the topsoil is stockpiled close by the land cleared and shall be used as a surface covering in conjunction with battering down the sides of the pits on a shallow angle so as to aid in the rehabilitation process of the mined areas.

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

**Methodology** Connolly (2007)  
Western Australian Herbarium (1998-2008)

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 desktop review of the available GIS Database found there were no Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) within the application area (GIS database).

The desktop review revealed that two Threatened Ecological Communities are, located approximately 1.5 kilometres and 5.6 kilometres to the south-west of the application area (GIS database). These are both described as Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula, and have been categorised as Vulnerable (C) under Western Australian criteria (DEC, 2006). These Vine Thickets are located

in the shelter of the sand dunes, inland from Cable Beach and extending south to Gantheaume Point (GIS database). The thickets represent the southernmost stand of rainforest vegetation in the Kimberley and are an important seasonal food resource for Aborigines, so are of high ecological importance (Burbidge et al, 1991).

The key threat to vine thickets is increased urban development which results in the modification of natural drainage regimes. Considering the distance between the proposed clearing and the vine thickets, and that this area is mostly vegetated and undisturbed, it is unlikely that the proposed clearing will impact the Monsoonal (vine) thickets.

The desktop review indicated one Priority Ecological Community located approximately 10 kilometres to the south-south-west of the application area (GIS database). This Priority 1 PEC is described as a Dwarf Pindan Heath community of the Broome coast, and it occurs between the racecourse and Gantheaume Point lighthouse (DEC, 2008). There have been insufficient surveys undertaken outside of the Broome town-site area to determine the full extent of this PEC. Considering the distance between the proposed clearing and this PEC, it is unlikely that the proposed clearing will impact the PEC.

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

**Methodology** Burbidge et al. (1991)  
DEC (2006)  
DEC (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 majority of the application area is a component of Beard Vegetation Association 750 (GIS database; Hopkins et al, 2001). Approximately 2.3% of this Association is located within an IUCN Class I-IV Reserves (Shepherd et al, 2001). There is approximately 99% of the pre-European extent of this Association remaining within the bioregion, which indicates it is well represented in the natural environment. Therefore, this Association is of least concern for biodiversity conservation (Department of Natural Resources and Environment, 2002).

A small proportion of the area applied to clear is a component of Beard Vegetation Association 73 (GIS database; Hopkins et al, 2001). While none of this Association is located within IUCN Class I-IV Reserves, there is approximately 98.2% of the pre-European extent of this Association remaining within the bioregion (Shepherd et al, 2001), which indicates it is well represented in the natural environment. Therefore, this Association is of least concern for biodiversity conservation (Department of Natural Resources and Environment, 2002).

Clearing of 13 hectares is unlikely to significantly reduce the remaining extent of either of the vegetation Associations.

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

**Methodology** Department of Natural Resources and Environment (2002);  
Hopkins et al (2001);  
Shepherd et al (2001);

GIS database:  
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**

Geomorphologically, the application area is an alluvial floodplain with low Aeolian dunes (Connolly, 2007). Small, gently undulating relict dune ridges approximately 2 metres higher than the surrounding plain are present in the eastern portion of the application area. There are no waterways or streams passing through the mining tenements.

Flooding occurs seasonally as a result of the semi-monsoonal climate of the area (Connolly, 2007), with most rain falling over the December to March period. Flood heights and durations can be lengthy and extreme. As the application area is within an alluvial floodplain, it is expected to experience seasonal inundation during heavy summer rainfall events. Furthermore, cleared areas will have the potential to experience erosion during these flooding events.

The application area is located approximately 2.5 kilometres east of the coast line and approximately 2

kilometres north-west of Dampier Creek (GIS database). A desktop survey also located the RAMSAR and ANCA classified wetland of Roebuck Bay approximately 3.5 kilometres to the south-east, and the Roebuck Plains and Lake Eda areas approximately 3 kilometres to the south-east of the application area (GIS database). It is unlikely that the proposed clearing will impact on these important waterbodies due to the distance between them and the application area.

Based on the above, the proposed clearing is at variance to this Principle. Should the permit be granted it is recommended that appropriate and timely rehabilitation of the area is conducted in order to control the risk of erosion during flooding events.

**Methodology** Connolly (2007)

GIS databases:

- Hydrography, linear (hierarchy)
- Register of National Estate
- RAMSAR, Wetlands
- ANCA, Wetlands

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

**Comments Proposal may be at variance to this Principle**

The soil profile is relatively primitive and consists of a shallow 100 millimetres to 250 millimetres layer of sandy topsoil low in organic material (Connolly, 2007). Beneath this layer of topsoil, the surface geology of the application area consists predominantly of clean well sorted fluvial derived fine white Quartz clay sand down to a depth of approximately 2 metres. Below this clean sand, the sand becomes increasingly clay rich.

Geomorphologically, the application area is an alluvial floodplain with low Aeolian dunes. Small, gently undulating relict dune ridges approximately 2 metres higher than the surrounding plain are present in the eastern portion of the application area (Connolly, 2007). There are no waterways or streams passing through the mining tenements. There is no bedrock outcrop on the tenements and sub-surface bedrock is yet to be encountered.

It is considered that the greatest land degradation risk posed as a result of the clearing of the vegetation will be from flooding, which occurs seasonally as a result of the semi-monsoonal climate of the area (Connolly, 2007). Most rain falls over the December to March period and flood heights and durations can be lengthy and extreme. As the application area is within an alluvial floodplain, it is expected to experience seasonal inundation during heavy summer rainfall events. Furthermore, cleared areas will have the potential to experience erosion during these flooding events.

Based on the above, the proposed clearing may be at variance to this Principle. Should the permit be granted it is recommended that clearing be conducted outside of those months which experience peak rainfall. In addition, appropriate and timely rehabilitation of the area should be conducted in order to control the risk of erosion during flooding events. Condition 2 that requires clearing outside monsoonal months will mitigate erosion potential.

**Methodology** Connolly (2007)

**(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**

A conservation reserve is located approximately 1.3 kilometres to the south-south-west of the application area (GIS database). This reserve is for the care and rehabilitation of wildlife, a wildlife veterinary clinic and a wildlife education area.

The distance between the reserve and the application area is considered adequate for 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 proposed mining will occur on an alluvial floodplain consisting of fine white sand (Connolly, 2007). Due to the shallow mining process, with less than 2 metre mining depth, the impact on subsurface water shall be minimal. The water table is located approximately 1 to 2 metres below the clay dominant base of the flood

plain. Mining will extend to the top of this clay dominant layer, but not into it, as this layer is not suitable for mining.

The application area is located within the Roebuck Sub-area of the Broome Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914* (GIS database). Dampier Creek lies approximately 2 kilometres to the south-east and the coast line lies approximately 2.5 kilometres to the west. The Public Drinking Water Source Area, consisting of P1 and P3 protection zones, lies approximately 5 kilometres to the north-east of the application area.

Due to the distances between the application area and the water source areas it is unlikely that the proposal will impact on the water quality of the groundwater within or around the Public Drinking Water Source Area or the surface water of the nearby creek.

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

**Methodology** Connolly (2007)

GIS databases:  
Public Drinking Water Source Areas (PDWSAs)  
RIWI Act, Surface Water Areas  
RIWI Act, Groundwater Areas  
Hydrography, linear (hierarchy)

**(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 climatic conditions in the region are semi-monsoonal with cyclones most likely to occur during the summer months. The average annual rainfall is 575 millimetres with an evaporation rate of 3100 millimetres, and an average of 49 wet days per year (Connolly, 2007). Prevailing winds consist mainly of easterly winds during the winter and westerly winds in the summer months.

The clearing of the vegetation within the application area is not likely to increase the incidence or intensity of these naturally occurring flood events.

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

**Methodology** Connolly (2007)

GIS database:  
Rainfall, Mean Annual

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

**Comments**

The clearing permit application was advertised by DoIR, inviting submissions from the public and direct interest parties. Two direct interest submissions were received:

Submission 1: This submission advised of their concerns relating to the issuing of a clearing permit for the area under the application. The direct interest party requested that attention be given to the impacts of dust, noise and vibration due to the proximity of the proposal to residential dwellings which make up the Northern area of the Shire of Broome Town Boundary.

Submission 2: This submission raised concerns regarding a lack of detailed information, environmental concerns, impacts on native title rights, impacts on aboriginal heritage and lack of consultation.

There is one native title claim over the application area (GIS Database). This claim (WC99/023) has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenement 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 is one registered Site of Aboriginal Significance within the application area, Billunguru (Site ID: 12389) (GIS Database). The applicant has been provided with information regarding Developer's Obligations under the *Aboriginal Heritage Act 1972*. 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.

It is the proponent's responsibility to liaise with the Department of Environment and Conservation and the Department of Water to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

The application area is within an area zoned Coastal Park Reserve under the Shire of Broome's Town Planning Scheme No. 4 (Shire of Broome, 2008), and is included within the area demarcated as Coastal Reserve in the Waterbank Structure Plan 2000 (DoLA, 2000). The aim of the Coastal Park Reserve are to:

- Recognise and protect the environmental integrity of the coastal foreshore and immediate hinterland;
- Ensure public access is provided to the coastal foreshore;
- Protect and promote Aboriginal culture and heritage associated with coastal areas;
- Protect coastal areas of landscape significance, amenity value, scientific and educational importance; and
- Provide for compatible recreation opportunities and related development (Shire of Broome, 2008).

The Town Planning Scheme acknowledges that development may still occur but outlines objectives for that development.

On the 6th of March 2008, the assessor referred the clearing proposal to the Environmental Protection Authority (EPA) under section 38 Part IV of *the Environmental Protection Act 1986* to set a level of assessment. The proposal triggered a number of referral criteria under the Memorandum of Understanding between the Department of Industry and Resources and the Environmental Protection Authority (dated 17 December 2004):

1. Within 2 kilometres of the coastline;
2. Potential to have an indirect effect upon the town-site of Broome, as it is located immediately adjacent to, and north of the town-site; and
3. The proposal overlaps an Aboriginal Site of Significance, Site ID: 12839 - Billunguru.

On 7th April 2008, the EPA advertised its determination on the clearing proposal as "Not Assessed - Managed under Part V of the EP Act". The EPA will not formally assess this project but expects the proponent and relevant agencies to ensure that it is environmentally acceptable.

**Methodology** DoLA (2000)  
Shire of Broome (2008)

GIS Databases:  
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), (c), (d), (e), (h), (i) and (j), is at variance to Principles (f) and maybe at variance to Principle(g).

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

#### 5. References

- Burbidge, A., McKenzie, N. & Kenneally K. (1991) Nature Conservation Reserves in the Kimberley Western Australia. Published by Department of Conservation and Land Management.
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- 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.
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Pindanland subregion)

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- 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.
- Shire of Broome (2008). Town Planning Scheme No 4. [online] Available at: <http://www.broome.wa.gov.au/planning/tps.htm>, accessed 04/06/08
- Western Australian Herbarium (1998-2008). FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.calm.wa.gov.au/> (Accessed 3/06/2008).

## 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.