



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 3745/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Phillip and Craig Bywaters

### 1.3. Property details

Property: Mining Lease 70/1191  
Local Government Area: Shire of Dalwallinu

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
20		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

Beard Vegetation Associations have been mapped at a scale of 1:250,000 for the whole of Western Australia. One Beard Vegetation Association is located within the application area (Shepherd, 2007):

- **676:** succulent steppe; Samphire.

Dr Ian Fordyce conducted a flora and vegetation survey over three Mining Leases, including Mining Lease 70/1191, in November 2009. Fordyce (2010) describes the vegetation as follows:

*On the lake, the vegetation is simple Samphire open shrubland, generally 20 – 30 centimetres tall. Cover is irregular – some parts are almost entirely bare; on most of the sandy (gypsiferous) section, cover varies from <1% to 15% but is usually <10%. Almost all the Samphire is a distinctive bluish grey variety (Tecticornia loriae) with minor Maireana oppositifolia and Atriplex holocarpa.*

##### Clearing Description

Phillip and Craig Bywaters (Bywaters) propose to clear up to 20 hectares of native vegetation. The proposed clearing is located approximately 30 kilometres north-east of Wubin (GIS Database).

The purpose of the proposed clearing is gypsum mining within the Lake Goorly salt lake system, a lake in excess of 12,000 hectares within the northern wheatbelt region (Bywaters, 2010; GIS Database).

##### Vegetation Condition

Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).

##### Comment

The vegetation condition rating was derived from a flora and vegetation survey conducted by Dr Ian Fordyce in November 2009.

Lake Goorly and surrounding areas have been historically used for agricultural and mining purposes (DEC, 2008). Previous gypsum mining activity has resulted in disturbance and modification of sections of Lake Goorly (DEC, 2008).

## 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 Lake Goorly salt lake system (GIS Database). Lake Goorly is a large, irregular basin that is saline and intermittent and has a lake floor composed of gypsum (DEC, 2008). Lake Goorly is a part of a chain of several thousand ephemeral salt lakes, playas and Samphire-covered claypans, that stretch for approximately 300 kilometres and cover an area of approximately 250,000 hectares (DEC, 2008). It is reported by DEC (2008) that these salt lakes are becoming progressively saltier as saline groundwater nears the surface.

Dr Ian Fordyce conducted a flora and vegetation survey over three Mining Leases, including Mining Lease 70/1191, in November 2009. Fordyce (2010) recorded 12 flora species from seven genera, representing five families. Fordyce (2010) reports that the most common family was *Chenopodiaceae* as many of the local species within this family are tolerant of salt and/or waterlogging to some degree. According to Fordyce (2010) there is a low diversity of flora within the survey area especially when compared to other saline wetlands in the region.

The vegetation present within the Lake Goorly salt lake system is representative of a Samphire/Chenopod shrubland and is likely to comprise of species that are widespread both locally and regionally (DEC, 2008). The lake and surrounding areas have historically been used for agricultural and mining purposes, and previous gypsum mining has resulted in disturbance and modification of sections of Lake Goorly near the area proposed

to be cleared. Fordyce (2010) reports that no Threatened Ecological Communities, Declared Rare or Priority Flora was recorded within the application area. Furthermore, Fordyce (2010) reports that considering the highly saline and exposed environment, only one Priority Flora species has the potential to grow on the lake itself.

There were no weed species recorded during the flora and vegetation survey (Fordyce, 2010). Care must be taken to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested areas. The risk of spreading weed species can be mitigated by imposing a condition for the purpose of weed management.

DEC (2008) reports that primary salt lakes such as Lake Goorly have naturally low aquatic invertebrate diversity. Furthermore, all aquatic vertebrate species recorded from Lake Goorly are widespread species (DEC, 2008). No fish species were observed during the survey and there are no previous records of fish in Lake Goorly (DEC, 2008). No terrestrial vertebrates were observed during the fauna survey of Lake Goorly (DEC, 2008). It is reported by DEC (2008) that eleven waterbird species have previously been recorded at Lake Goorly. This low number of waterbirds is attributed to the low intensity and number of fauna surveys conducted for Lake Goorly as well as to the low diversity of roosting and breeding habitat for waterbirds.

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

**Methodology** DEC (2008)  
Fordyce (2010)  
GIS Database  
- Hydrography, linear

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

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

A resource condition study was conducted by Department of Environment and Conservation (DEC) for Lake Goorly in July 2009. This study considers the ecological character and condition of Lake Goorly and included a survey for aquatic invertebrates, fish, waterbirds and terrestrial vertebrates (DEC, 2008).

No terrestrial vertebrates or fish were recorded during this fauna survey (DEC, 2008) which is as expected given the low diversity of habitat available in the area. Jellison (2005), reports that the most widely recognised ecological value of salt lakes is as a habitat for migratory and nesting populations of birds.

The fauna survey conducted by DEC (2008) recorded two species of waterbirds at Lake Goorly. A previous survey conducted at Lake Goorly recorded 11 species of waterbirds, none of which are protected by international migratory treaties (DEC, 2008). The low waterbird diversity recorded at Lake Goorly is attributed by DEC (2008) to the meagre survey effort at the site and also to the lack of upper storey vegetation. DEC (2008) states that the littoral vegetation is composed of chenopod shrubland, so there is little diversity of roosting and breeding habitat for waterbirds.

The proposed clearing of 20 hectares of Samphire / Chenopod shrubland is unlikely to result in a loss of significant habitat for fauna indigenous to Western Australia.

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

**Methodology** DEC (2008)  
Fordyce (2010)  
Jellison (2005)

**(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**

Fordyce (2010) conducted a flora and vegetation survey of three Mining Leases including Mining Lease 70/1191. This survey consisted of a desktop search in addition to a field based survey (Fordyce, 2010).

Fordyce (2010) reports that due to the highly saline and exposed environment, the only conservation significant flora species able to grow on the lake itself would be the annual daisy *Podotheca pritzelii* (Priority 3).

Fordyce (2010) reports that no Declared Rare or Priority Flora species were recorded during the flora and vegetation survey.

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

**Methodology** Fordyce (2010)

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

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

There are no known Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) within the area applied to clear (GIS Database). The nearest known PEC is located approximately 45 kilometres north-east of the application area (GIS Database).

Fordyce (2010) reports that no TECs or PECs were identified during the flora and vegetation survey of the application area.

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

**Methodology Fordyce (2010)**

GIS Database  
- Threatened Ecological Sites

**(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 at variance to this Principle**

The application area falls within the Avon Wheatbelt Interim Biogeographic Regionalisation of Australia (IBRA) subregion and the Shire of Dalwallinu (GIS Database). Shepherd (2007) reports that approximately 18% of the pre-European vegetation still exists within this subregion, whilst approximately 21.7% of the pre-European vegetation remains within the Shire of Dalwallinu (see table below). The vegetation within the application area is recorded as the following Beard Vegetation Association (Shepherd, 2007):

- **676:** succulent steppe; Samphire.

According to Shepherd (2007), approximately 19.5% of this vegetation type remains within the Avon Wheatbelt IBRA bioregion with approximately 1.5% held in reserves. Approximately 7.9% remains within the subregion (see table below)

Salt lakes comprise a majority of the uncleared land in the Shire of Dalwallinu, and are important reservoirs for fauna, providing an ecological linkage between remaining vegetated areas. The proposed clearing area is part of a significant remnant within the Shire and local area.

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

The proponent has advised that the site will be progressively rehabilitated to ensure that the ecological values of the site are restored after the mining operation has been completed (Bywaters, 2010). The proponent has demonstrated their commitment to restoring the vegetation in previously mined areas and a site visit by an Environmental Officer from Department of Mines and Petroleum in 2008 reported that these areas have been restored successfully. This is further supported by photographs provided by Bywaters (2010) of rehabilitated areas. Based on the above commitment and demonstrated ability to successfully implement rehabilitation, vegetation loss resulting from mining activity is likely to be temporary.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves (and post clearing %)
IBRA Bioregion - Avon Wheatbelt	9,517,110	1,443,690	~15.2	Depleted	~1.8 (~7.8)
IBRA Subregion - Avon Wheatbelt	6,524,191	1,168,615	~18.0	Depleted	~10.0 (~25.0)
Local Government - Dalwallinu	722,730	156,832	~21.7	Depleted	n/a
Beard vegetation associations - State					
676	2,063,389	1,958,293	~95.0	Least Concern	~3.6 (~3.7)
Beard vegetation associations - Bioregion					
676	124,573	24,316	~19.5	Depleted	~0.3 (~1.5)
Beard vegetation associations - subregion					
676	7,618	604	~7.9	Depleted	n/a

\* Shepherd (2007)

\*\* Department of Natural Resources and Environment (2002)

Options to select from: Bioregional Conservation Status of Ecological Vegetation Classes  
(Department of Natural Resources and Environment 2002)

Presumed extinct Probably no longer present in the bioregion

Endangered\* <10% of pre-European extent remains

Vulnerable\* 10-30% of pre-European extent exists

Depleted\* >30% and up to 50% of pre-European extent exists

Least concern >50% pre-European extent exists and subject to little or no degradation over a majority of this area

\* or a combination of depletion, loss of quality, current threats and rarity gives a comparable status

**Methodology** Bywaters (2010)  
Department of Natural Resources and Environment (2002)  
Shepherd (2007)  
GIS Database  
- IBRA WA (Regions - Subregions)

**(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**

The proposal is for the clearing of 20 hectares of native vegetation on Lake Goorly, an extensive salt lake system within the northern wheatbelt region (GIS Database).

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

Lake Goorly is a saline and intermittent lake (DEC, 2008). The area proposed for disturbance is not subject to inundation or waterlogging as it is not situated within a salt lake depression (Bywaters, 2010).

Bywaters (2010) has advised that mining activity will be restricted to dry periods. Although the proposal is at variance to this Principle, the vegetation proposed to be cleared is typical of that associated with salt lake systems throughout the wheatbelt and is not considered to have significant environmental values (CALM, 2002; DEC, 2008).

Bywaters (2010) has advised that the site will be mined in 1 hectare stages, and that progressive rehabilitation will be carried out to ensure that ecological values of the site are restored after the mining operation has been completed. Bywaters (2010) will rehabilitate the site by respreading stockpiled topsoil and vegetation into those areas where gypsum has been extracted. These areas will then be ripped to facilitate germination of seed stored in the topsoil, as well as seed that has blown in from outside the mined area (Bywaters, 2010). Photographs supplied by Bywaters (2010), indicates that previous post-mining rehabilitation on Lake Goorly has been successful in allowing Samphire vegetation to recolonise after gypsum mining.

Based on the above, it is unlikely that the proposed vegetation clearing will have a significant impact upon the Lake Goorly salt lake system or any other watercourse or wetland.

**Methodology** Bywaters (2010)  
CALM (2002)  
DEC (2008)  
GIS Database  
- Hydrography, linear

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

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

DEC (2008) reports that secondary salinisation is the greatest threat to wetlands of the wheatbelt. Secondary salinisation occurs when the water table rises in response to increased water infiltration and reduced evapotranspiration following the clearing of native vegetation (DEC, 2008).

DEC (2008) states that Lake Goorly is a primary wetland and is therefore, naturally highly saline. Secondary salinisation of such salt lake results in an increase in the extent and period of inundation and the resultant soil waterlogging kills vegetation (DEC, 2008). It has been reported by DEC (2008) that barriers to the flow of surface water or groundwater can exacerbate the effects of water table rise, for example, roads that block the flow of water through the landscape.

Advice provided by DAFWA (2010) states that the application area is in an area of primary salinity and the proposed clearing is unlikely to be a land degradation hazard.

This advice is further supported by previous advice received from DAFWA (2006) relating to applications to clear native vegetation for gypsum mining in Lake Goorly. This advice stated that the proposed gypsum mining operation is unlikely to cause land degradation in the form of on-site or off-site salinity, soil erosion or eutrophication.

Furthermore, DEC (2008) reports that an assessment by the Environmental Protection Authority (EPA) concluded that gypsum mining on Lake Goorly is of low environmental risk.

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

**Methodology** DAFWA (2006)  
DAFWA (2010)  
DEC (2008)

**(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 any conservation reserves (GIS Database). The nearest Department of Environment and Conservation managed land is the Jibberding Nature Reserve located approximately 9 kilometres south-west of the application area (GIS Database).

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

**Methodology** GIS Database  
- DEC Tenure

**(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.**

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

The area to be cleared does not fall within a Public Drinking Water Source Area (GIS Database). The area proposed to be cleared is located within the Lake Goorly salt lake system. This lake has a shallow water table and contains water that is highly saline and of poor quality due to nutrient enrichment from surrounding agricultural lands (DEC, 2008). It is unlikely that the proposed clearing will decrease the quality of the already hypersaline underground water. The bed of the salt lake contains many depressions within which water accumulates following significant rainfall events (DEC, 2008). The vegetation proposed to be cleared does not fall within such a depression, and considering that the lake is dry for the greater part of the year, the proposal is not likely to impact upon surface water quality.

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

**Methodology** DEC (2009)  
GIS Database  
- Public Drinking Water Source Areas (PDWSAs)

**(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 area proposed to be cleared is located within the northern wheatbelt region and experiences 300 millimetres of rainfall per year on average (BoM, 2010). It is only during and after heavy rainfall events that Lake Goorly is prone to inundation, however, as the area under application is not situated within a low-lying section of this lake system, it is not prone to holding water (Bywaters, 2010). Based on the above, it is unlikely that the clearing associated with this proposal will result in flooding or an incremental increase in peak flood height.

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

**Methodology** BoM (2010)  
Bywaters (2010)

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

**Comments**

There are no Native Title claims over the application area (GIS Database).

According to available databases there is one registered Aboriginal Site of Significance (site ID: 24380) within the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

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

The clearing permit application was advertised by the Department of Mines and Petroleum on 17 May 2010, inviting submissions from the public. There was one submission received regarding Aboriginal Heritage concerns.

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

#### 4. Assessor's comments

##### Comment

This application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the *Environmental Protection Act 1986*, and the proposed clearing is at variance to Principles (e) and (f) and is not likely to be at variance to Principles (a), (b), (c), (d), (g), (h), (i), and (j).

#### 5. References

- BoM (2010) Dalwallinu, Western Australia. Bureau of Meteorology. Available online from <http://www.bom.gov.au/wa/>. Accessed 10 June 2010.
- Bywaters (2010) Supporting Documentation for Clearing Permit Application. Phil and Craig Bywaters.
- CALM (2002) Biodiversity Audit of Western Australia's 53 Biogeographical Subregions (Ancient Drainage subregion).
- DAFWA (2006) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food, Western Australia.
- DAFWA (2010) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food, Western Australia.
- DEC (2008) Resource Condition Report for a Significant Western Australian Wetland: Lake Goorly. Department of Conservation and Land Management, Western Australia.
- 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.
- Fordyce, I. (2010) Flora and vegetation survey of a gypsum deposit in Lake Goorly, Dalwallinu Shire, M70/1118, M70/1191, M70/1256. Unpublished report. Yarra Yarra Catchment Management Group, Western Australia.
- Jellison, R. (2005) Commentary - Saline Systems: IX international conference on salt lake research: Research opportunities and management challenges. Available: <http://www.salinesystems.org/content/1/1/12>.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- 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.

#### 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>DMP</b>	Department of Mines and Petroleum, 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

RIWI Rights in Water and Irrigation Act 1914, Western Australia.  
s.17 Section 17 of the Environment Protection Act 1986, Western Australia.  
TECs 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.