



## 1. Application details

### 1.1. Permit application details

Permit application No.: 2407/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: ARC Energy Limited

### 1.3. Property details

Property: Petroleum Production Licence L 1 R1  
Local Government Area: Shire of Irwin  
Colloquial name: Hovea 1 Well Project

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.502		Mechanical Removal	Petroleum 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 1:250,000 scale for the whole of Western Australia, and are a useful tool to examine the vegetation extent in a regional context. One Beard vegetation association was located within the application area: 433: Mosaic: Shrublands; *Acacia rostellifera* & *Melaleuca cardiophylla* thicket / sparse low woodland; illyarrie (Shepherd et al. 2001).

Hart Simpson and Associates (2001) conducted vegetation mapping of the application area in November 2001. They described the vegetation surrounding the application area as typical of beard vegetation 433, however the vegetation within the application area is described as highly degraded, dominated by *Acacia rostellifera* and pasture species.

##### Clearing Description

Arc Energy Ltd proposes to clear 0.502 hectares of native vegetation for the Hovea 1 Well project. The proposed clearing is for a flare pit associated with petroleum production which is required by the Fire and Emergency Services Authority (FESA) during drilling operations. Clearing will be undertaken mechanically with a raised blade (Hart Simpson and Associates, 2001).

##### Vegetation Condition

Completely Degraded: No longer intact; completely/almost completely without native species (Keighery 1994)

##### Comment

The vegetation of the application area is regrowth on previously cleared pastoral land and highly degraded. Weed and pastoral species dominated undergrowth (Hart Simpson and Associates, 2001).

## 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 situated 13 kilometres south-east of the town site of Dongara, within the Lesueur Sandplains sub-region of the Geraldton Sandplains Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database).

The Lesueur Sandplains bioregion contains a high proportion of endemic plants with over 250 plants endemic to the subregion (Desmond & Chant, 2001). The area is recognised Australia-wide and internationally as having particularly high floristic diversity, with an area of 10 square metres supporting up to 80 different species (ANRA, 2008). On the continental landscape stress class assessed by the Landscape Health Report, the bioregion is listed at 4, however, Desmond and Chant (2001) state it should be 3 or worse (1 is most stressed, 6 is least stressed). The level of threat faced is similar to that of the Avon Wheatbelt, but the reserve system is more representative (Desmond & Chant, 2001). The main threatening processes to the region are feral animals, grazing pressures, changing fire regimes, increasing land fragmentation, exotic weeds and changes to hydrology (ANRA, 2008).

Although the bioregion is noted for its high levels of biodiversity the application area is highly degraded from past clearing associated with pastoral and mining activities (Hart Simpson and Associates, 2001). The vegetation in the application area is regrowth from past clearing on pastoral land. The regrowth consists of limited species and is dominated by *Acacia rostellifera* and pasture species (Hart Simpson and Associates, 2001).

No Declared Rare Flora or Priority flora were recorded within the application area during the vegetation survey conducted by Hart Simpson and Associates (2001), and due to the degraded nature of the application area it is unlikely to represent significant habitat for any flora species of conservation significance.

Hart Simpson and Associates (2001) state the application area has very low value as fauna habitat and any impact on the fauna will not be significant in local or regional terms.

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

**Methodology** ANRA (2008)  
Desmond and Chant (2001)  
Hart Simpson and Associates (2001)  
GIS Database  
- Interim Biogeographic 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**

The assessing officer conducted a database search of the West Australian Museum's Faunabase website within the co-ordinates 29.1° S, 114.8° W and 30.7° S, 116.0° W (Faunabase, 2008). This search identified five species of conservation significant fauna that have the potential to occur within the application area, these are listed in the table below.

Common Name	Scientific Name	Conservation Status
Malleefowl	<i>Leipoa ocellata</i>	Schedule 1 under the <i>Wildlife Conservation Act 1950</i>
Carnaby's Black-Cockatoo	<i>Calyptorhynchus latirostris</i>	Schedule 1 under the <i>Wildlife Conservation Act 1950</i>
Southern Dribbler	<i>Parantechinus apicalis</i>	Schedule 1 under the <i>Wildlife Conservation Act 1950</i>
Carpet Python	<i>Morelia spilota imbricata</i>	Schedule 4 under the <i>Wildlife Conservation Act 1950</i>
Rufous Fieldwren	<i>Calamanthus campestris montanellus</i>	Department of Environment and Conservation, Priority 4

(Faunabase, 2008)

The application area consists of natural regeneration of *Acacia rostellifera* in dense thickets within the pasture. Although this gives the impression of being dense native vegetation, it consists of only one species and has an understory of weed and pasture species (Hart Simpson and Associates, 2001). Given the small application area (0.502 hectares) and the degraded nature of the vegetation, the clearing is unlikely to affect the conservation status of the species listed above, or impact upon significant fauna habitats. Furthermore, the fauna habitats within the application area are well represented in the surrounding area (Hart Simpson and Associates, 2001).

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

**Methodology** Faunabase (2008)  
Hart Simpson and Associates (2001)

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

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

According to available databases there are no known records of Declared Rare Flora (DRF) or Priority Flora within the application area (GIS Database). The nearest registered specimens of DRF occur approximately 8 kilometres to the east of the application area (GIS Database).

Hart Simpson and Associates (2001) conducted a flora survey over the application area in November 2001. This survey revealed no occurrences of Declared Rare Flora or Priority flora within or near the application area. Furthermore the vegetation in the application area is highly degraded from its natural state due to historic pastoral activities (Hart Simpson and Associates, 2001).

*Acacia rostellifera* is the dominant plant within the application area with an understory of weed, and pasture species. Surveys of nearby patches of native vegetation revealed only three other species from the following

genus; *Rhagodia* (one plant), *Anthocercis* (one plant) and one parasitic mistletoe (Hart Simpson and Associates, 2001). Due to the reduced biodiversity and highly degraded nature of the vegetation within the application area, it is unlikely to represent significant habitat for DRF or priority flora.

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

**Methodology** Hart Simpson and Associates (2001)  
GIS Database  
-Declared Rare Flora

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

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

There are no known Threatened Ecological Communities (TEC's) within the Hovea 1 application area (GIS Database). The nearest registered TEC's occur approximately 40 kilometres to the south-east and north-west of the application areas (GIS Database). It is unlikely these communities will be impacted by this proposal.

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

**Methodology** 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 Interim Biogeographic Regionalisation for Australia (IBRA) Geraldton Sandplains bioregion (GIS Database). According to Shepherd et al. (2001) there is approximately 42.2% of the pre-European vegetation remaining in the Geraldton Sandplains bioregion which places it's conservation status as 'depleted' according to the Department of Natural Resources and Environment (2002).

One Beard vegetation association was located within the application area; 433 (GIS Database). Within the bioregion, there is approximately 40.2% of the pre-European vegetation extent remaining of Beard vegetation association 433. Beard vegetation association 433 is 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 – Geraldton Sandplains	3,136,277	1,324,440	~42.2	Depleted	~15.3 (~35.5)
IBRA Subregion – Lesueur Sandplains	1,171,805	478,987	~40.9	Depleted	~17.7 (~41.4)
Local Government – Irwin	238,186	115,612	~48.6	Depleted	N/A
<b>Beard veg assoc. – State</b>					
433	32,462	13,040	~40.2	Depleted	~4.9 (~12.1)
<b>Beard veg assoc. – Bioregion</b>					
433	32,462	13,040	~40.2	Depleted	~4.9 (~12.1)
<b>Beard veg assoc. – Subregion</b>					
433	18,094	9,900	~54.7	Least Concern	~8.9 (~15.9)

Whilst nearly 60 percent of the sub-region has been cleared, the proposed clearing of 0.502 hectares is unlikely to significantly reduce the extent of Beard vegetation association 433 below current levels. Therefore, the vegetation within the application area is not likely to be a significant remnant in an area that has been highly cleared. Furthermore, the vegetation within the application area is degraded and comprises a mixture of cleared land, introduced species and native vegetation.

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 Databases:  
- the Interim Biogeographic Regionalisation for Australia  
- Pre-European Vegetation

**(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.**

**Comments** **Proposal is not likely to be at variance to this Principle**  
According to available databases, there are no watercourses, drainage lines or wetlands within the application area (GIS Database).

The vegetation types identified by Hart Simpson and Associates (2001) are not examples of riparian vegetation, and are common in the landscape.

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

**Methodology** Hart Simpson and Associates (2001)  
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**  
Soil in the application area consists of grey and yellow sand over shallow limestone (Hart Simpson and Associates, 2001). Sandy soils are generally not as susceptible to water erosion as clays and loams however they are more prone to wind erosion (Wikipedia, 2008). The Geraldton Sandplains Bioregion is subject to strong summer breezes which may cause wind erosion. Provided the application area is managed it is likely erosion and land degradation will be mitigated. Therefore should the permit be granted, it is recommended a condition be placed on the permit for the purposes of erosion control.

In addition, the proponent has advised that clearing will be conducted with a raised blade, which will further reduce the potential for erosion associated within the proposal.

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

**Methodology** Hart Simpson and Associates (2001)  
Wikipedia (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 C-class Yandanogo (flora and fauna) Nature Reserve occurs approximately 2.5 kilometres to the south-west of the application area (GIS Database). Although the application area is within close proximity to a conservation reserve, the application area has been historically used for mining and agriculture (Hart Simpson and Associates, 2001). Consequently, the application area is degraded, providing limited protection or buffers from wind, dust or weeds to the nearby nature reserves. Furthermore the application area is relatively small totalling 0.502 hectares, thereby reducing any likely impact on the nearby conservation reserve.

Notwithstanding this, it is acknowledged the vegetation within the application area may be used as ecological linkages for birds and some larger reptiles and mammals, however, due to the degraded nature of the vegetation much of the refuge potential has been lost.

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

**Methodology** Hart Simpson and Associates (2001)  
GIS Database  
- CALM managed lands

**(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**  
According to available databases, the application area is not associated with any permanent or ephemeral

watercourses, wetlands or water bodies (GIS Database), therefore, impact on surface water is unlikely.

The proposed clearing is not situated within a Public Drinking Water Source Area (PDSWA) (GIS Database) and is therefore unlikely to have an impact on drinking water sources.

Groundwater within the application area is fresh to brackish, between 1,000 - 3,000 milligrams per litre of Total Dissolved Solids (GIS Database). Given the large size of the Coastal Catchment area (92,000 hectares) (GIS Database) and the relatively small size of the application area (0.5024 hectares), it is unlikely that the clearing project will impact on the quality of the groundwater.

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

**Methodology** GIS Database  
-Groundwater Salinity, Statewide  
-Hydrography, linear  
-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 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 relatively dry climate with winter predominant rainfall pattern averaging approximately 500 millimetres per annum (GIS Database), and a high average annual evaporation rate exceeding the average annual rainfall be three times (approximately 1500 millimetres) (GIS Database);
- There are no water courses or wetlands within the immediate vicinity of the application area (GIS Database), therefore water is not prone to pooling near the application area;
- The application area is relatively small totalling 0.502 hectares, resulting in minimal water runoff; and
- The topography of the application area is slight with a slow descent from north to south. Water movements across land during significant rainfall events are expected to be slow allowing infiltration and reducing mass transition of water to lower areas.

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

**Methodology** Geoscience Australia (2008)  
GIS Database  
-Evapotranspiration, Area Potential  
-Mean Rainfall, Annual

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

**Comments**

There is one native title claim over the application area; WC04\_002. This claim has been registered with the Native Title Tribunal on behalf of the claimant group (GIS Database). 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 are no known Aboriginal Sites of Significance located within the clearing permit 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.

A submission letter was received raising three points which are considered below.

1) "That the clearing does not interfere with any Aboriginal Sites, and be undertaken in compliance with the *Aboriginal Heritage Act 1972*".

There are no registered Sites of Aboriginal Significance within the area applied to clear (GIS Database).

2) "Native vegetation is used by Aboriginal people for bush tucker and medicine. The effects of the proposed clearing on this use of the land by our clients should be considered on the basis that cultural and social use fall within the definition of 'environment' under section 3(2) of the *Environmental Protection Act 1984* [sic] (WA). The

Environmental Protection Authority's Guidance statement 41 further provides that the *Environmental Protection Act 1984* [sic] can give attention to matters of a social nature, including traditional hunting activities, be providing for the retention of habitat for native fauna to enable such activities to continue".

The application area is highly degraded, relatively small and contains limited plant species. Better quality native vegetation occurs around the application area, which may be better suited for bush tucker and medicine.

3) "With respect to assessment of the proposal against the Clearing Principles outlined in Schedule 5 of the *Environmental Protection Amendment Act 2003 (WA)*, Clearing Principle (e) provides that native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared. As such, we request that the cumulative impact of all application be considered in light of clearing Principle (e).

The clearing of 0.502 hectares is a relatively small proposal. Considering the land was previously cleared for pastoral activities, and the application area occurs in Acacia regrowth, it is not expected to be a remnant in the bioregion. This has been further addressed in Principle (e).

**Methodology** GIS Database  
-Aboriginal Sites of Significance  
-CALM Managed Lands  
-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), (f), (g), (h), (i) and (j).

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

#### 5. References

- Australian Natural Resource Atlas (ANRA) (2008), Biodiversity Assessment Geraldton Sandplains, [www.anra.gov.au](http://www.anra.gov.au). Published by the Department of the Environment and Water Resources.
- 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.
- Desmond, A & Chant, A. (2001) Geraldton Sandplains 3 (GS3 - Lesueur Sandplain Subregion) in A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002. Report Published by CALM. Perth Western Australia.
- Faunabase (2008), Electronic source of information, viewed 20 May 2008 [www.museum.wa.gov.au/faunabase](http://www.museum.wa.gov.au/faunabase)
- Geoscience Australia (2008), 'What Causes Floods' Electronic source of information, viewed 20 May 2008, <http://www.ga.gov.au/hazards/flood/causes.jsp>
- Hart Simpson and Associates Pty Ltd (2001), 'Hovea-1 Well, L1. Environmental Management Plan', Unpublished report, Perth Western Australia
- 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., 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.
- Wikipedia (2008), 'Erosion', Electronic source of information viewed on 27/5/2008 <http://en.wikipedia.org/wiki/Erosion>

#### 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.