



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 4332/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Origin Energy Developments Pty Ltd

### 1.3. Property details

Property: Production Licence 11  
Exploration Permit 320  
Local Government Area: Shire of Irwin  
Colloquial name: Beharra Springs Drilling Program

### 1.4. Application

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

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 7 July 2011

## 2. Site Information

### 2.1. Existing environment and information

#### 2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
<p>Beard vegetation associations have been mapped for the whole of Western Australia. One Beard vegetation association has been mapped within the application area:</p> <p><b>378:</b> Shrublands; scrub-heath with scattered <i>Banksia</i> spp., <i>Eucalyptus tottiana</i> and <i>Xylomelum angustifolium</i> on deep sandy flats in the Geraldton Sandplain Region.</p> <p>Woodman Environmental Consultants (WEC) conducted vegetation mapping over the area as part of mapping several tenements in the Dongara area (WEC, 2009). Two Floristic Community Types (FTCs) were mapped over the application area:</p> <p><b>FCT 4a:</b> Species rich woodlands and heaths on grey sand in the eastern portion of the Eneabba sandplain. Common species include <i>Conospermum boreale</i> subsp. <i>?boreale</i>, <i>Ecdeiocolea monostachya</i>, <i>Eremaea beaufortoides</i>, <i>Hakea polyanthema</i> and <i>Banksia candolleana</i>.</p> <p><b>FCT 4b:</b> Thicket dominated by <i>Banksia hookeriana</i> and/or <i>Banksia attenuata</i>, with emergent <i>Banksia prionotes</i> on yellow sand on upper slopes and dune crests (WEC, 2009).</p>	<p>Origin Energy Developments Pty Ltd (Origin) has applied to clear up to 33.54 hectares of native vegetation for the purpose of constructing two gas appraisal wells. Clearing is to allow for the construction of two drill pads, a flowline and access roads. The application area consists of two separate areas with each containing a gas appraisal well. The northern part of the application area is for the Trapdoor 1 well while the southern part is for the Wolf Dwindip 1 well. Trapdoor 1 is located approximately 8 kilometres north of Wolf Dwindip 1.</p> <p>The gas appraisal wells are part of Origin's Beharra Springs drilling program, located approximately 30 kilometres south-east of Dongara.</p> <p>Vegetation will be cleared using a dozer, grader and other equipment as required. Vegetation will be stockpiled and used during site rehabilitation.</p>	<p>Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).</p> <p>To:</p> <p>Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).</p>	<p>The vegetation condition for the Trapdoor 1 part of the application area was assessed by botanists from Matisse Consulting (2011). The vegetation condition of the Wolf Dwindip part of the application area was derived from the vegetation condition of the Dongara area as described by botanists from WEC (2009).</p>

### 3. Assessment of application against clearing principles

#### (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

##### Comments

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

The application area occurs within the Leseur Sandplain subregion of the Geraldton Sandplains Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion contains shrub-heaths rich in endemics occurring on a mosaic of lateritic mesas, sandplains, coastal sands and limestones (CALM, 2002). The subregion exhibits extremely high floristic endemism and is also regarded as having particularly high floristic diversity (CALM, 2002).

The vegetation within the application area is broadly mapped as Beard vegetation association 378, which has 64.1% of its pre-European vegetation extent remaining (Shepherd, 2009; GIS Database). Structural vegetation mapping and flora surveying was undertaken by botanists from Woodman Environmental Consulting (WEC) over several Dongara tenements during October to December 2006, October to November 2007, and August and October 2008 (WEC, 2009). The vegetation of the Trapdoor 1 part of the application area has been described as Floristic Community Type (FCT) 4a and the Wolf Downdip 1 part as FCT 4b (WEC, 2009). Both of these FCTs are considered to be widespread in the Northern Sandplains study area and have lower conservation significance rankings than most of the other FCTs found within the Dongara tenements (WEC, 2009).

A total of 543 native vascular plant taxa belonging to 68 plant families were recorded within the Dongara tenements during flora surveys conducted between 2006 and 2008 (WEC, 2009). Conservation significant flora species recorded in the Dongara tenements consisted of one Declared Rare Flora (DRF) species, three Priority 1 species, six Priority 2 species, twelve Priority 3 species and eight Priority 4 species (WEC, 2009).

A DRF and Priority Flora survey was undertaken over the Trapdoor 1 part of the application area by Mattiske Consulting botanists in March 2011 (Mattiske Consulting, 2011). No DRF or Priority Flora were recorded (Mattiske Consulting, 2011). No targeted DRF and Priority Flora survey has been undertaken over the Wolf Downdip 1 part of the application area. Wolf Downdip 1 has been regionally mapped as FCT 4b and seven Priority Flora taxa have been recorded within this FCT within the Dongara study area (WEC, 2009). Two of these Priority Flora species have populations within 2 kilometres of the Wolf Downdip 1 part of the application area (DEC, 2011). Therefore, there is a reasonable possibility that Priority Flora occur within the application area. Potential impacts to Priority Flora may be minimised by the implementation of a flora management condition.

Thirty six introduced flora taxa were recorded from the Dongara tenements but in general weed invasion was very low (WEC, 2009). No Declared Plant species, listed by the Department of Agriculture and Food, were recorded (WEC, 2009). The presence of weed species lowers the biodiversity value of the area. Care must be taken to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested areas. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

No Threatened Ecological Communities or Priority Ecological Communities were recorded within the application area (WEC, 2009; Mattiske Consulting, 2011; GIS Database).

The majority of the Dongara tenements were determined to be 'mappable' for the presence of *Phytophthora cinnamomi* (dieback) and there were no recorded infestations of *Phytophthora cinnamomi* in the mappable areas (WEC, 2009). Origin have committed to pathogen and *Phytophthora cinnamomi* hygiene management to prevent the introduction of pathogens (Origin, 2011b).

The fauna diversity of the application area is likely to be similar to that of the surrounding area. The fauna habitats provided by the vegetation in FCTs 4a and 4b are likely to occur throughout the Northern Sandplains area where these FCTs occur. There are no notable fauna habitat features within the application area that would encourage a higher level of faunal diversity compared to surrounding areas, such as wetlands, watercourses, ridges or hill tops (GIS Database).

Although the application area occurs within a subregion and locality known for its high biodiversity, the vegetation types mapped within the application area are not of elevated conservation significance compared to other vegetation types of the Dongara area (WEC, 2009). Origin have also sought to reduce the impact of the clearing by utilising existing seismic lines and tracks as part of the application area. The potential impacts to biodiversity may be minimised by the implementation of a rehabilitation condition.

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

##### Methodology

CALM (2002)  
DEC (2011)  
Mattiske Consulting (2011)  
Origin (2011b)  
Shepherd (2009)  
WEC (2009)  
GIS Database:  
- Arrowsmith 50 cm Orthomosaic - Landgate 2006

- Dandaragan Geraldton 25 m TM321 - 2000
- Hydrography, Linear
- IBRA WA (Regions - Subregions)
- Pre-European Vegetation
- Threatened Ecological Sites Buffered

**(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**

No targeted fauna surveys have been undertaken over the application area. The vegetation types that have been identified within the application area, FCTs 4a and 4b, are considered to be widespread in the Northern Sandplains area and not restricted to the surrounding Dongara area (WEC, 2009). Therefore, the fauna habitats that these vegetation types provide are not likely to be locally restricted.

Nearby wetlands in the Dongara area provide significant habitat for bird species (Australian Heritage Database, 2011). However, the application area is not associated with a wetland (GIS Database) and therefore does not provide this potentially significant fauna habitat.

The application area contains existing disturbance from previous drill site tracks (Mattiske Consulting, 2011). This disturbance somewhat diminishes the quality of fauna habitat and its potential to be significant habitat for native fauna.

A search of the Department of Environment, Water, Heritage and the Arts' (DEWHA) Protected Matters Database and the Department of Environment and Conservation's (DEC) NatureMap Database using a 10 kilometre buffer revealed two Threatened, five Migratory and one Priority fauna species:

- Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*);
- Cattle Egret (*Ardea ibis*);
- Fork-tailed Swift (*Apus pacificus*);
- Great Egret (*Ardea alba*);
- Malleefowl (*Leipoa ocellata*);
- Rainbow Bee-eater (*Merops ornatus*);
- Rufous Fieldwren (*Calamanthus campestris* subsp. *montanellus*); and
- White-bellied Sea-Eagle (*Haliaeetus leucogaster*) (DEC, 2011; DEWHA, 2011).

All of these bird species are highly mobile and/or widely distributed and while the application area may provide some foraging habitat for some of these species, it is unlikely to be core habitat.

Given the relatively small size of the application area and its lack of notable habitat features, it is unlikely to be considered 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** Australian Heritage Database (2011)  
 DEC (2011)  
 DEWHA (2011)  
 Mattiske Consulting (2011)  
 WEC (2009)  
 GIS Database:  
 - Hydrography, Linear

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

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

According to available databases there are no known records of Declared Rare Flora (DRF) within the application area (GIS Database). There are four DRF species recorded within a 20 kilometre radius of the application area (DEC, 2011) and the Lesueur Sandplain subregion contains a large number of rare flora (CALM, 2002).

A DRF and Priority Flora search was undertaken over the northern Trapdoor 1 part of the application area by botanists from Mattiske Consulting in February 2011. No DRF species were recorded within the northern part of the application area (Mattiske Consulting, 2011).

No targeted DRF and Priority Flora searches have been undertaken over the southern Wolf Dondip 1 part of the application area. The closest recorded DRF species is *Paracaleana dixonii* but this species was not recorded in the same floristic community type as Wolf Dondip 1 and is therefore not expected to occur (WEC, 2009). Although the likelihood of DRF occurring within the application area is low, given that the application area occurs within a subregion recognised for its rare flora the absence of DRF can only be confirmed through a survey. Potential impacts to DRF may be minimised by the implementation of a flora management condition.

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

**Methodology** CALM (2002)  
DEC (2011)  
Mattiske Consulting (2011)  
WEC (2009)  
GIS Database:  
- Declared Rare and Priority Flora List

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

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

A search of available databases revealed there are no known Threatened Ecological Communities (TECs) within the application area (GIS Database). The nearest recorded TEC is located approximately 25 kilometres east of the application area (GIS Database). At this distance, the proposed clearing is unlikely to impact on the TEC.

No flora based TECs were recorded in the northern Trapdoor 1 part of the application area during the flora survey undertaken by botanists from Mattiske Consulting (Mattiske Consulting, 2011).

Woodman Environmental Consulting undertook comprehensive structural vegetation mapping studies over several Dongara tenements during October to December 2006, which included the application area. None of the floristic community types recorded in the survey area corresponded to TECs (WEC, 2009).

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

**Methodology** Mattiske Consulting (2011)  
WEC (2009)  
GIS Database:  
- Threatened Ecological Sites Buffered

**(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.**

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

The clearing application area falls within the Geraldton Sandplains Interim Biogeographic Regionalisation for Australia (IBRA) bioregion in which approximately 45% of the pre-European vegetation remains (see table) (Shepherd, 2009; GIS Database). This gives it a conservation status of "Depleted" according to the Bioregional Conservation Status of Ecological Vegetation Classes (Department of Natural Resources and Environment, 2002).

The vegetation of the clearing application area has been broadly mapped as Beard vegetation association 378 "Shrublands; scrub-heath with scattered *Banksia* spp., *Eucalyptus tottiana* and *Xylomelum angustifolium* on deep sandy flats in the Geraldton Sandplain Region" (GIS Database). According to Shepherd (2009) approximately 64.1% of Beard vegetation association 378 remains at the state and bioregional levels and 66.6% remains at a subregional level. This vegetation association would be given a conservation status of "Least Concern" (Department of Natural Resources and Environment, 2002).

Whilst the subregion has been extensively cleared, the proposed clearing of 33.54 hectares of native vegetation is unlikely to be a significant reduction to current vegetation levels. The vegetation under application is not likely to be a significant remnant of vegetation in an area that has been extensively cleared.

	Pre-European Area (ha)*	Current Extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves (and Post Clearing %)
IBRA Bioregion – Geraldton Sandplains	3,136,025	1,410,755	~45.0	Depleted	15.4 (34.0)
IBRA Subregion – Leseur Sandplain	1,171,770	503,894	~43.0	Depleted	17.9 (41.2)
Local Government – Shire of Irwin	236,968	117,293	~49.5	Depleted	12.2 (24.4)
<b>Beard Veg Assoc. – State</b>					
378	95,109	60,940	~64.1	Least Concern	14.1 (22.0)
<b>Beard Veg Assoc. – Bioregion</b>					
378	95,109	60,940	~64.1	Least Concern	14.1 (22.0)
<b>Beard Veg Assoc. – Subregion</b>					
378	90,923	60,509	~66.6	Least Concern	14.8 (22.2)

\* Shepherd (2009)

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

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 (2009)  
GIS Database:  
- IBRA WA (Regions - Subregions)  
- 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 or wetlands within the application area (GIS Database). The vegetation within the application area is not considered to be growing in association with any watercourse or wetland (Origin, 2011a).

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

**Methodology** Origin (2011a)  
GIS Database:  
- Geodata, Lakes  
- 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**  
There are no watercourses or sand dunes within the application area, which lowers the risk of water and wind erosion (Origin, 2011a; GIS Database). Origin plan to undertake sheeting of the roads and drill pads which will further reduce the risk of wind erosion (Origin, 2011a).

The drill pads will need a 200 metre radius firebreak if work is undertaken during the restricted or prohibited fire season. If a firebreak of this size is required then the vegetation will be slashed, leaving much of the rootstock intact (Origin, 2011a). This will substantially reduce the risk of wind erosion (Origin, 2011a).

The proposed clearing activities are not likely to result in large areas of disturbed or open land. Rehabilitation activities will be undertaken in accordance with Origin's 2009 Drilling Environmental Management Plan (Origin, 2011b). Given the small size of the proposed activities, the clearing is not likely to result in appreciable land degradation.

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

**Methodology** Origin (2011a)

Origin (2011b)  
GIS Database:  
- Hydrography, Linear

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

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

The proposed clearing is not located within a conservation reserve (GIS Database). The nearest conservation area is the Arrowsmith Lake Area which is located approximately 3 kilometres south-west of the application area (GIS Database). The Arrowsmith Lake Area is listed on the Register of National Estate for its natural values including unique flora and large populations of waterfowl and land birds (Australian Heritage Database, 2011). The nearest Department of Environment and Conservation (DEC) managed conservation reserve is Yandanogo Nature Reserve which is located approximately 4 kilometres west of the application area (GIS Database). Despite the close proximity to several conservation areas, it is considered that the proposed clearing is low impact and of a small scale and will not significantly impact on the environmental values of the nearby conservation areas.

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

**Methodology** Australian Heritage Database (2011)  
GIS Database:  
- DEC Tenure  
- Register of National Estate

**(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**

There are no surface water bodies within, or in close proximity to, both the northern and southern parts of the application area (Origin, 2011a; GIS Database). Therefore, it is unlikely the clearing of native vegetation associated with this proposal will cause a deterioration in surface water quality.

According to available databases the application area is not located with a Public Drinking Water Source Area (PDWSA). The nearest PDWSA is Allanooka - Dongara Water Reserve, which is approximately 23 kilometres north of the application area (GIS Database).

The small area of the proposed clearing is unlikely to cause deterioration in the quality of underground water.

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

**Methodology** Origin (2011a)  
GIS Database:  
- Hydrography, Linear  
- 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 application area is located within the Arrowsmith River catchment area of the Greenough River basin (GIS Database). Given the size of the area to be cleared (33.54 hectares) in relation to the size of the catchment area (160,418 hectares) (GIS Database), the proposed clearing is not likely to increase the potential of flooding on a local or catchment scale.

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

**Methodology** GIS Database:  
- Hydrographic Catchments - Catchments

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

**Comments**

There is one Native Title Claim (WC04/2) over the area under application (GIS Database). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the petroleum tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Aboriginal Sites of Significance within the application area (GIS Database). 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 on 16 May 2011 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received.

**Methodology** GIS Database:  
- Aboriginal Sites of Significance  
- Native Title Claims - Registered with the NNTT

## 4. References

- Australian Heritage Database (2011) Department of Sustainability, Environment, Water, Population and Communities. <http://www.environment.gov.au/heritage/index.html> (Accessed 3 June 2011).
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Geraldton Sandplain 3 (GS3 - Lesueur Sandplain Subregion). Department of Conservation and Land Management, Western Australia.
- DEC (2011) NatureMap: Mapping Western Australia's Biodiversity. Department of Environment and Conservation. <http://naturemap.dec.wa.gov.au/default.aspx> (Accessed 1 July 2011).
- 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.
- DEWHA (2011) Protect Matters Search Tool. Coordinates 115-10-04 E, 29-27-34 S, Within a 10 Kilometre Radius. Search Conducted 1 July 2011.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Mattiske Consulting (2011) Assessment of Declared Rare and Priority Flora Species at Wolf 1 and Trap Door 1 Exploration Areas. Unpublished Report by Mattiske Consulting Pty Ltd for Origin Energy Limited, March 2011.
- Origin (2011a) Clearing Permit Application Supporting Documentation - Trapdoor 1 and Wolf Dondip 1. Unpublished Report Prepared by Origin Energy Developments Pty Ltd, March 2011.
- Origin (2011b) Environmental Management Plan - Beharra Springs 2011/2012 Drilling Program. Report Prepared by Origin Energy Developments Pty Ltd, March 2011.
- Shepherd, D.P. (2009) 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.
- WEC (2009) Dongara Tenements Flora and Vegetation Studies Regional FCT Analysis. Report Prepared by Woodman Environmental Consulting, October 2009.

## 5. Glossary

### Acronyms:

<b>BoM</b>	Bureau of Meteorology, Australian Government
<b>CALM</b>	Department of Conservation and Land Management (now DEC), Western Australia
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia
<b>DEC</b>	Department of Environment and Conservation, Western Australia
<b>DEH</b>	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
<b>DEP</b>	Department of Environment Protection (now DEC), 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 (now DEC), Western Australia
<b>DoIR</b>	Department of Industry and Resources (now DMP), Western Australia
<b>DOLA</b>	Department of Land Administration, Western Australia
<b>DoW</b>	Department of Water
<b>EP Act</b>	Environmental 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>ha</b>	Hectare (10,000 square metres)
<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 Act</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>TEC</b>	Threatened Ecological Community

## **Definitions:**

{Atkins, K (2005). *Declared rare and priority flora list for Western Australia, 22 February 2005*. Department of Conservation and Land Management, Como, Western Australia} :-

- P1 Priority One - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P2 Priority Two - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P3 Priority Three - Poorly Known taxa:** taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.
- P4 Priority Four – Rare taxa:** taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.
- R Declared Rare Flora – Extant taxa (= Threatened Flora = Endangered + Vulnerable):** taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
- X Declared Rare Flora - Presumed Extinct taxa:** taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-

- Schedule 1 Schedule 1 – Fauna that is rare or likely to become extinct:** being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.
- Schedule 2 Schedule 2 – Fauna that is presumed to be extinct:** being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.
- Schedule 3 Schedule 3 – Birds protected under an international agreement:** being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.
- Schedule 4 Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

{CALM (2005). *Priority Codes for Fauna*. Department of Conservation and Land Management, Como, Western Australia} :-

- P1 Priority One: Taxa with few, poorly known populations on threatened lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P2 Priority Two: Taxa with few, poorly known populations on conservation lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P3 Priority Three: Taxa with several, poorly known populations, some on conservation lands:** Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P4 Priority Four: Taxa in need of monitoring:** Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.
- P5 Priority Five: Taxa in need of monitoring:** Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

## **Categories of threatened species (*Environment Protection and Biodiversity Conservation Act 1999*)**

- EX Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.
- EX(W) Extinct in the wild:** A native species which:



- (a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
- (b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

**CR** **Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.

**EN** **Endangered:** A native species which:  
(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.