



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 4496/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: **Crescent Gold Limited**

### 1.3. Property details

Property: Mining Lease 39/185  
Mining Lease 39/262  
Miscellaneous Licence 39/214  
Local Government Area: Shire of Menzies  
Colloquial name: Lord Byron Gold Mine

### 1.4. Application

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

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 1 September 2011

## 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 for the whole of Western Australia and are useful to look at vegetation in a regional context. One Beard vegetation association has been mapped within the application area:

**Beard vegetation association 18:** Low woodland; mulga (*Acacia aneura*) (Shepherd, 2009; GIS Database).

*MBS Environmental (2009a)* conducted a flora survey of the application area and surrounding areas on 14 to 24 January 2009, and described seven vegetation communities of the application area:

1. Drainage Tract Mulga Shrublands (DRMS) - Highly variable vegetation composition largely composed of species common to surrounding vegetation units. It is dominated by *Acacia aneura* low forest over highly variable understorey, reflecting species present in adjacent habitats, consisting of shrubs, grasses and herbs including *Eremophila* species, *Dodonaea* species, *Exocarpus aphyllus*, *Santalum spicatum* and in the south, *Eucalyptus* species;
2. Banded Iron Formation (BIF) - Confined to rocky hills and ridges where soils are shallow, restricted to the gaps between banded ironstone rocks and boulders. Vegetation is dominated by *Acacia aneura*, *Acacia* sp. aff. *quadrimarginea*, *A. tetragonophylla* open scrub, though this stratum becomes increasingly sparse towards the crests of the hills. Open low scrub of *Eremophila latrobei* subsp. *latrobei*, *Philothea brucei* subsp. *brucei* and *Hibiscus gardneri* form a mid stratum over *Cheilanthes sieberi* subsp. *sieberi*, *Isotoma petraea* and *Ptilotus helipteroides* subsp. *helipteroides*. Very open herbs (*Riachne mucronata*, *Enneapogon caerulescens*, *Cymbopogon ambiguus*) and very open grasses also appear;
3. Tall Mulga Thicket (MTES) - Tall Mulga thicket with scattered Eucalypts over low shrubland with Spinifex on red loam;
4. Mulga Scrub (MSDU) - Tall Mulga scrub over diverse understorey on ironstone on red loam;
5. Open Mixed Scrub (OMS) - Open mixed scrub with occasional Sheoaks over diverse understorey on rocky Quartz and Ironstone;
6. Open Low Eucalypt Woodland (OLEW) - Open low Eucalypt woodland with occasional Sheoaks over diverse understorey on Quartz and Ironstone rises; and
7. Tall Mulga Thicket over Low Shrubland (MTLS) - with occasional Spinifex.

#### Clearing Description

Crescent Gold Limited is proposing to clear up to 55 hectares of native vegetation for the Lord Byron Gold Mine Project. The clearing of vegetation is required for the development of open pits, and associated waste dumps, run of mine (ROM) pads, haul roads, a dewatering pipeline and other associated infrastructure for mineral production.

The vegetation will be cleared using a bulldozer or other heavy plant equipment. The vegetation and topsoil will be stockpiled and used in rehabilitation.

**Vegetation Condition** Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).

**Comment** The application area is located in the Shield subregion of Western Australia and is situated approximately 84 kilometres south-east of Laverton.

The vegetation condition was derived from a vegetation survey conducted by MBS Environmental (2009a).

### 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 occurs within the Shield (GVD1) subregion of the Great Victoria Desert Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is characterised by Spinifex (*Triodia* sp.) and Mallee (*Eucalyptus kingsmillii*, *E. youngiana*) over hummock grassland dominated by *Triodia basedowii* occur on the Aeolian sand plain. Scattered marble gum (*E. gongylocarpa*) and native pine (*Callitris*) occur on the deeper sands of the sand plains. Mulga and acacia woodlands occur mainly on the colluvial and residual soils. Halophytes such as salt bush (*Atriplex*), Bluebush (*Kochia*), and samphire occur, on margins of salt lakes and in saline drainage areas (CALM, 2002). The vegetation within the application area consists of Beard vegetation association 18, which is common and widespread throughout the Great Victoria Desert bioregion with approximately 99.9% of the pre-European vegetation extent remaining (Shepherd, 2009; GIS Database). MBS Environmental (2009a) and aerial photography suggests that the vegetation type within the application area is common and widespread in the local area (GIS Database).

A vegetation survey by MBS Environmental (2009a) undertaken between 14 to 24 January 2009 of the application area and surrounding vegetation identified 40 species of flora taxa belonging to 23 Genera and 17 Families. MBS Environmental (2009a) identified seven vegetation communities within the application area. The condition of the vegetation types were classified as 'degraded' to 'very good' (Keighery, 1994; GIS Database).

A search of the Department of Environment and Conservation Declared Rare and Priority Flora databases revealed four Priority Flora species which may potentially occur within a 40 kilometre radius of the application area (DEC, 2011). No Declared Rare Flora (DRF) species were identified (DEC, 2011). MBS Environmental (2009a) identified no DRF and no Priority Flora species within the application area.

No Threatened Ecological Communities or Priority Ecological Communities were recorded or identified within the application area (GIS Database).

There was no weed species were identified during the survey (MBS Environmental, 2009a). Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area. Potential impacts to the biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

The fauna habitats within the application area are considered to be common and widespread within the subregion and faunal assemblages are unlikely to be different to that found in similar habitat located elsewhere in the region (MBS Environmental, 2009b). The habitat types are not of high ecological significance and the clearing of 55 hectares of native vegetation is unlikely to have a significant impact in a regional context.

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

**Methodology** MBS Environmental (2009a)  
MBS Environmental (2009b)  
CALM (2002)  
DEC (2011)  
Keighery (1994)  
Shepherd (2009)  
GIS Database:  
- IBRA WA (regions - subregions)  
- North East Yilgarn 1.5M Orthomosaic - Landgate 2004  
- 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**

A level one fauna survey has been conducted over the application area. A vegetation survey conducted by MBS Environmental (2009b) identified six broad fauna habitat types;

1. Mulga thicket with scattered Eucalypts;
2. Mulga scrubs;
3. Tall Mulga thicket over low shrubland;
4. Open mixed scrub;
5. Open low eucalyptus woodland;
6. Drainage tract mulga shrubland; and
7. Banded Ironstone formation.

The vegetation within the application area consists of Beard vegetation association 18, which is common and widespread throughout the Great Victoria Desert bioregion with approximately 99.9% of the pre-European vegetation extent remaining (Shepherd, 2009; GIS Database). The native vegetation to be cleared is in 'degraded' to 'very good' condition (Keighery, 1994).

There are five conservation significant fauna species listed as either Threatened Species under the *Environment Protection and Biodiversity Conservation Act 1999* or protected under Western Australian legislation (*Wildlife Conservation Act, 1950*), that may potentially occur within a 30 kilometre radius of the application area (DEC, 2011). These five species; the Peregrine Falcon (*Falco peregrinus*), Australian Bustard (*Ardeotis australis*), Woma Python (*Aspidites ramsayi*), Great Desert Skink (*Egernia kintorei*) and Sandhill Dunnart (*Sminthopsis psammophila*) may use the application area for foraging as part of a larger territory area or as a seasonal visitor (MBS Environmental, 2009b). The habitat present within the application area is not considered significant habitat for these species (MBS Environmental, 2009b). MBS Environmental (2009b) conducted a level one fauna survey of the application area during February 2009 and recorded one observation of the Australian Bustard (*Ardeotis australis*). This species is nomadic, dispersive, and moves in response to rainfall (MBS Environmental, 2009b).

The proposed clearing of 55 hectares of native vegetation is not likely to impact critical feeding or breeding habitat for any conservation significant species. The conservation significant species listed above that could possibly utilise the application area based on habitats present are considered highly mobile and/or have a wide distribution and the proposed clearing is unlikely to significantly impact these species (MBS Environmental, 2009b).

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

**Methodology** DEC (2011)  
Keighery (1994)  
MBS Environmental (2009b)  
Shepherd (2009)  
GIS Database:  
- North East Yilgarn 1.5M Orthomosaic - Landgate 2004  
- Pre-European Vegetation

**(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 records of Declared Rare Flora (DRF) within the application area (GIS Database). A search of the Department of Environment and Conservation Declared Rare and Priority Flora databases identified no DRF species as occurring within a 20 kilometre radius of the application area (DEC, 2011).

MBS Environmental (2009a) conducted a vegetation and flora survey of the application area during January 2009. No DRF were recorded within the survey area.

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

**Methodology** MBS Environmental (2009a)  
DEC (2011)  
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 the available databases shows that there are no Threatened Ecological Communities situated within 100 kilometres 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:  
- 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 at variance to this Principle**

The application area falls within the Great Victoria Desert IBRA bioregion (GIS Database). The vegetation within the application area is recorded as Beard vegetation association 18: Low woodland; mulga (*Acacia aneura*) (GIS Database; Shepherd, 2009).

According to Shepherd (2009), Beard vegetation association 18 retains approximately 100% of its pre-European extent. Therefore, the area proposed to be cleared is not a significant remnant of native 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
IBRA Bioregion - Great Victoria Desert	21,794,207.35	21,785,242.12	~99.96	Least Concern	8.46
Beard vegetation associations - State					
18	19,892,304.84	19,890,275.39	~99.99	Least Concern	2.13
Beard vegetation associations - Bioregion					
18	1,954,625.28	1,954,625.28	~100	Least Concern	9.22

\* Shepherd (2009)

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

Based on the above, the proposed clearing is not 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 may be at variance to this Principle**

According to available databases there are four ephemeral drainage lines which intersect the application area (GIS Database). These drainage lines only flow after major rainfall events (MBS Environmental, 2009a). Based on vegetation mapping by *MBS Environmental (2009a)*, there is one riparian vegetation type associated with the drainage lines;

- Drainage Tract Mulga Shrublands (DRMS) - The DRMS vegetation complex has been described by Western Botanical (2007) as having a highly variable vegetation composition largely composed of species common to surrounding vegetation units. It is dominated by *Acacia aneura* low forest over highly variable understorey, reflecting species present in adjacent habitats, consisting of shrubs, grasses and herbs including *Eremophila* species, *Dodonaea* species, *Exocarpus aphyllus*, *Santalum spicatum* and in the south, *Eucalyptus* species.

The condition of the riparian vegetation type is classified as 'good' (Keighery, 1994; GIS Database) and the clearing of some riparian vegetation is unlikely to result in any significant impact to vegetation growing in association with a watercourse or wetland.

Crescent Gold Limited will limit any impact to the riparian vegetation where possible, with the installation of floodways where required (MBS Environmental, 2009a).

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

**Methodology** MBS Environmental (2009a)  
Keighery (1994)  
Western Botanical (2007)  
GIS Database:  
- Geodata, Lakes

- Hydrography, Linear
- North East Yilgarn 1.5M Orthomosaic ? Landgate 2004

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

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

The application area lies within the Laverton region which is part of the north-eastern Goldfields, and lies within the Yilgarn Craton's 'Eastern Goldfields Terrains' (CALM, 2002). Pringle et al (1994) describe the Yilgarn Craton as linear to arcuate, north-west trending greenstone and local gneissic rock belts. The application area lies within the Austin Botanical District of the Eremaean Province (Beard, 1990). The topography of this region is described as undulating with occasional ranges of prominent hills of Greenstone outcrops and extensive sandy plains in the eastern half. There are no permanent rivers, creeks or lakes within the project area. Soils in the Laverton area are typically red loams that are loose and friable, with a few small ironstone and quartz pebbles on the flats (Beard, 1990).

Vegetation of the Austin Botanical District is predominantly mulga low woodland on plains, grading into mulga scrub on hills. Sand plains of the region are typically dominated by *Eucalyptus* sp. over *Spinifex* (Western Botanical, 2007).

Over-grazing by stock and rabbits is the major cause of land degradation and the Eastern Goldfields subregion is not likely to be susceptible to erosion (Morton, Short & Barker, 1995).

Based on the above the proposed clearing may be at variance to this Principle. Potential land degradation impacts as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

- Methodology**
- Beard (1990)
  - CALM (2002)
  - Morton, Short & Baker (1995)
  - Pringle et al (1994)
  - Western Botanical (2007)
  - GIS Database:
    - IBRA WA (Regions - Subregions)

**(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 application area is not located within any conservation area (GIS Database). The nearest conservation area is Queen Victoria Spring Nature Reserve, located approximately 121 kilometres south of the application area (GIS Database).

Given the distance of the application area from the Queen Victoria Spring Nature Reserve, the proposed clearing is not likely to provide a significant ecological linkage or fauna movement corridor and is not likely to impact the environmental values of the conservation area.

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**

According to available databases, the application area is not located within a Public Drinking Water Source Area (GIS Database).

The application area is located within the proclaimed Goldfields groundwater area under the Rights in Water and Irrigation Act 1994 (GIS Database). Any groundwater extraction and/or taking or diversion of surface water for the purposes other than domestic and/or stock watering is subject to licence by the Department of Water.

There are several ephemeral watercourses passing through the application area which only support surface water for short periods following significant rainfall events (GIS Database; MBS Environmental, 2009a). The proposed clearing is not likely to cause deterioration in the quality of any surface water within or outside of the application area.

The application area lies within a low rainfall zone and any surface water within the application area is likely to only remain for short periods following significant rainfall events (BoM, 2011). The proposed clearing is not likely

to cause deterioration in the quality of any surface water within or outside of the application area.

Groundwater salinities within the application area have been measured in the range of 3,000-7,000 milligrams/Litre Total Dissolved Solids (GIS Database). Groundwater occurs in a discontinuous fractured rock aquifer system and the zone of permanent saturation is generally 40 to 50 metres below the ground surface (Crescent Gold, 2009). Given the depth of groundwater and the lack of phreatophytic species in the application area, the removal of 55 hectares of native vegetation is unlikely to impact on groundwater levels or quality.

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

**Methodology** BoM (2011)  
Crescent Gold (2009)  
MBS Environmental (2009a)  
GIS Database:  
- Geodata, Lakes  
- RIWI Act, Groundwater Areas  
- Hydrography, Linear  
- Public Drinking Water Source Areas

**(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 experiences an arid climate with summer and winter rainfall, with an annual average rainfall of approximately 232.2 millimetres per year (CALM, 2002; BoM, 2011). Based on an average annual evaporation rate of 2,400 - 2,800 millimetres (BoM, 2011), any surface water resulting from rainfall events is likely to be relatively short lived.

Given the size of the area to be cleared (55 hectares) compared to the size of the Lake Carey catchment area (11,378,213 hectares) (GIS Database) it is not likely that the proposed clearing will lead to an appreciable increase in run off, and subsequently cause or exacerbate the incidence or intensity of flooding.

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

**Methodology** BoM (2011)  
CALM (2002)  
GIS Database:  
- Hydrographic Catchments - Catchments  
- Hydrography, Linear

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

**Comments**

There are no Native Title claims over the area under application. The mining 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 25 July 2011 by the Department of Mines and Petroleum inviting submissions from the public. One submission was received in relation to the proposed clearing, stating no objection to the application.

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

## 4. References

- Beard J.S (1990) Plant Life of Western Australia. Kangaroo Press Pty Ltd, New South Wales.
- BoM (2011) Climate Statistics for Australian Locations. A Search for Climate Statistics for Laverton WA, Australian Government Bureau of Meteorology, viewed 17 August 2011, <[http://reg.bom.gov.au/climate/averages/tables/cw\\_012045.shtml](http://reg.bom.gov.au/climate/averages/tables/cw_012045.shtml)>.
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Great Victoria Desert (GVD1 ? Shield subregion) Department of Conservation and Land Management, Western Australia.
- Crescent Gold (2009) Clearing Permit Application Supporting Documentation for Clearing Permit 3409/1, November 2009.
- DEC (2011) NatureMap - Mapping Western Australia Biodiversity, Department of Environment and Conservation, viewed 17 August 2011, <<http://naturemap.dec.wa.gov.au>>.
- 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.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- MBS Environmental (2009a) Flora and Vegetation Survey for Laverton Gold Project, West Perth, WA.
- MBS Environmental (2009b) Level 1 Fauna Survey for Lord Byron (M39/0262) Admiral Hill and Castaway (M38/0376, M38/0507) and Various Haul Road Routes at Laverton Gold Project, West Perth, WA.
- Morton, S. R., Short, J. & Barker, R. D (1995) Refugia for Biological Diversity in Arid and Semi-arid Australia, Department of the Environment, Sport and Territories, Canberra, ACT.
- Pringle, H.J.R., Van Vreeswyk, A.M.E. & Gilligan, S.A (1994) Technical Bulletin No. 87: An Inventory and Condition Survey of rangelands in the north-eastern Goldfields, Western Australia., Department of Agriculture, South Perth, WA.
- 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.
- Western Botanical (2007) Flora and Vegetation of the Craiggimore Project Area and Associated Haul Road Alignment, July 2007. Prepared for Crescent Gold Limited, Unpublished report.
- Western Botanical (2008) Flora and Vegetation of the Proposed Fish Haul Road Alignment. Western Botanical, Western Australia.

## 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.