



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 6123/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Avoca Mining Pty Ltd

### 1.3. Property details

Property: Miscellaneous Licence 15/346  
Local Government Area: Shire of Coolgardie  
Colloquial name: Lake Cowan Haul Road

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
24.9		Mechanical Removal	Haul Road

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 17 July 2014

## 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. The following Beard vegetation associations are located within the application area (GIS Database):

- 8: Medium woodland; salmon gum and gimlet;
- 9: Medium woodland; coral gum (*Eucalyptus torquata*) & goldfields blackbutt (*E. le soufii*);
- 522: Medium woodland; redwood (*Eucalyptus transcontinentalis*) & merrit (*E. floctoniae*); and
- 936: Medium woodland; salmon gum.

A Level 1 flora and vegetation survey was undertaken over the application area by Native Vegetation Solutions (NVS) on 28 January 2014. The following three vegetation groups were identified within the application area (NVS, 2014b):

1. Transitional *Eucalyptus* woodland: Dominant species were *Eucalyptus salmonophloia*, *E. salubris*, *Melaleuca sheathiana*, *Atriplex nummularia* subsp. *spathulata*, *Eremophila interstans* subsp. *virgata*, *Maireana sedifolia*, *Cratystylis conocephala* and *Olearia muelleri*.
2. Mixed *Eucalyptus* woodland over sclerophyll shrubland: Dominant species were *Eucalyptus ravida*, *E. torquata*, *E. gracilis*, *E. urna*, *Trymalium myrtillus* subsp. *myrtillus*, *Eremophila scoparia*, *Acacia erinacea*, *Halgania andromedifolia*, *Dodonaea lobulata*, *Scaevola spinescens* and *Olearia muelleri*.
3. *Acacia* sp narrow phyllode over mixed sclerophyll shrubland: Dominant species were *Acacia* sp narrow phyllode, *Eucalyptus griffithsii*, *Alyxia buxifolia*, *Prostanthera grylloana*, *Dianella revoluta* subsp. *divaricata* and *Cryptandra graniticola*.

**Clearing Description** Lake Cowan Haul Road.

Avoca Mining Pty Ltd proposes to clear up to 24.9 hectares of native vegetation within a total boundary of approximately 142 hectares, for the purpose of a haul road. The project is located approximately 55 kilometres north of Norseman, in the Shire of Coolgardie.

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

To

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

**Comment** The purpose of the proposed clearing is to construct the Lake Cowan haul road for the Higginsville Gold Operation. Vegetation condition was determined by NVS (2014b).

### 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 Eastern Goldfields (COO3) Interim Biogeographic Regionalisation of Australia subregion (GIS Database). This subregion is generally described as gently undulating plains interrupted in the west with low hills and ridges of Archaean greenstones (CALM, 2002). The vegetation is of mallees, *Acacia* thickets and shrub-heaths on sandplains; diverse *Eucalyptus* woodlands occur around salt lakes, on ranges and in valleys; and salt lakes support dwarf shrublands of samphire (CALM, 2002). *Eucalyptus* woodlands have been identified as having a high species and ecosystem diversity within the Eastern Goldfields subregion (CALM, 2002).

According to NVS (2014b), vegetation within the application area comprises transitional *Eucalyptus* woodland, mixed *Eucalyptus* woodland over sclerophyll shrubland and *Acacia sp* narrow phyllode over mixed sclerophyll shrubland. Broad scale vegetation mapping has also been conducted over the majority of the application area by GHD (2014) as part of a larger desktop flora and fauna assessment of the Lake Cowan project area (approximately 22,500 hectares). This included a one day site visit on 29 January 2014 to assist in the broad scale mapping. None of the vegetation associations occurring within the application area were identified as significant and all extended outside the application area and occurred at other locations in the 22,500 hectare Lake Cowan project area (GHD, 2014). Aerial imagery shows the application area is located in a largely uncleared landscape and that vegetation within the application area is continuous with surrounding areas (GIS Database). Based on the above, vegetation within the application area is unlikely to comprise a higher level of biodiversity than surrounding areas.

NVS (2014b) found that overall the condition of the vegetation was 'very good'. Some areas were affected by historic exploration and clearing and were found to be in a 'good' condition. Aerial imagery shows that an existing track traverses most of the application area (GIS Database).

A total of 94 flora species from 48 genera and 25 families were recorded in the application area (NVS, 2014b). No weed species were recorded. 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.

Available databases show no Threatened or Priority Flora or Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) are known to occur within the application area (GIS Database). No TECs, PECs, Threatened Flora or Priority Flora were recorded in the application area by NVS (2014b).

A fauna survey has not been conducted over the application area, however, based on broad scale vegetation mapping undertaken by GHD (2014) the broad fauna habitat types likely to occur within the application area are unlikely to support a higher level of fauna diversity than surrounding areas.

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

**Methodology**      CALM (2002)  
GHD (2014)  
NVS (2014b)  
GIS Database:  
- Cowan 3234 Mar 2011 Mosaic  
- IBRA WA (Regions – Sub Regions)  
- Threatened and Priority Flora  
- 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 fauna survey has not been conducted over the application area, however, a desktop flora and fauna assessment of the Lake Cowan project area (approximately 22,500 hectares) has been conducted over most of the application area. This was conducted by GHD (2014) and included a one day site visit on 29 January 2014 to assist in mapping broad scale vegetation units.

Fauna habitat information can be obtained from the vegetation mapping undertaken by GHD (2014) and NVS (2014b). Based on the broad scale vegetation mapping (GHD, 2014), the application area may comprise loamy plains and valleys, rocky hills and saline plains. Available databases also show there are several minor, non-perennial watercourses that cross the application area (GIS Database). According to vegetation mapping undertaken by NVS (2014b) vegetation within the application area broadly comprises *Eucalyptus* woodland and *Acacia sp* shrubland.

According to Naturemap, 12 mammal, 70 bird, 3 amphibian, 8 invertebrate and 46 reptile species have been recorded within a 20 kilometre radius of the approximate centrepiece of the application area (DEC, 2014). Four

of these species are conservation significant fauna species. GHD (2014) conducted a likelihood of occurrence assessment for conservation significant fauna species based on species' range and habitat requirements and previous and predicted recordings within 20 kilometres of the Lake Cowan project area. The following three species were identified as likely to occur within the Lake Cowan project area (GHD, 2014):

- Malleefowl (*Leipoa ocellata*) – Vulnerable; Schedule 1;
- Rainbow Bee-eater (*Merops ornatus*) (Marine, Migratory; Schedule 3); and
- Peregrine Falcon (*Falco peregrines*) (Schedule 4).

The Naturemap search returned one record of Malleefowl within 20 kilometres of the application area (DEC, 2014). The Malleefowl occurs in semi-arid and arid zones of temperate Australia, where it occupies shrublands and low woodlands that are dominated by mallee vegetation (Department of the Environment, 2014). The breeding habitat of the Malleefowl, within its home range, is characterised by light soil and an abundant leaf litter, which is used in the construction of nesting mounds (Department of the Environment, 2014). According to NVS (2014a), the application area contains suitable Malleefowl breeding habitat in isolated patches, namely the '*Acacia sp* narrow phyllode over mixed sclerophyll shrubland' vegetation group (comprises 2.18 hectares or 1.5% of the application area). NVS (2014a) considers the other vegetation groups as too sparse for Malleefowl breeding habitat. The entire application area was visually inspected by NVS (2014a) with targeted searching for Malleefowl mounds undertaken in the '*Acacia sp* narrow phyllode over mixed sclerophyll shrubland' vegetation group. No Malleefowl mounds were observed within the application area (NVS, 2014a). Whilst the Malleefowl may occur in the application area, the absence of identified Malleefowl mounds indicates the application area is unlikely to comprise significant habitat for this species.

The Rainbow Bee-eater and Peregrine Falcon are mobile, wide ranging species and are, therefore, unlikely to be significantly impacted by the proposed clearing. GHD (2014) also identified four conservation significant fauna species that may possibly occur in the Lake Cowan project area. However, given the nature of the application area (long, narrow corridor) and availability of similar habitat in the surrounding areas it is unlikely the application area comprises significant habitat for these species.

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

**Methodology** DEC (2014)  
Department of the Environment (2014)  
GHD (2014)  
NVS (2014a)  
NVS (2014b)  
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 is not likely to be at variance to this Principle**  
According to available databases, there are no known Threatened Flora species within the application area (GIS Database).

NVS (2014b) did not record any Threatened Flora species during the flora and vegetation survey of the application area.

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

**Methodology** NVS (2014b)  
GIS Database:  
- Threatened and Priority 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**  
According to available databases, there are no known Threatened Ecological Communities (TECs) within the application area (GIS Database). The nearest known TEC is approximately 240 kilometres south east of the application area (GIS Database).

NVS (2014b) did not record any TECs during the flora and vegetation survey.

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

**Methodology** NVS (2014b)  
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 is located within the Coolgardie Interim Biogeographical Regionalisation for Australia (IBRA) bioregion (GIS Database). Approximately 97.96% of the pre-European vegetation remains within the Coolgardie bioregion (Government of Western Australia, 2013).

The vegetation of the application area has been mapped as Beard vegetation associations 8, 9, 522 and 936 (GIS Database). With the exception of Beard vegetation association 8, over 95% of these Beard vegetation associations remain at both a state and bioregional level (Government of Western Australia, 2013). Slightly less than 50% of Beard vegetation association 8 remains at a state level, however, over 95% remains at a bioregional level (Government of Western Australia, 2013). Therefore, the area proposed to be cleared does not represent a significant remnant of native vegetation within an area that has been extensively cleared. A review of aerial imagery also shows that vegetation within the application area is not a remnant within the local area (GIS Database).

	Pre-European Area (ha)*	Current Extent (ha)*	Remaining %*	Conservation Status**	Current Extent % in DPaW Managed Lands
IBRA Bioregion - Coolgardie	12,912,204	12,648,491	~97.96	Least Concern	~15.84
Beard Veg Assoc. - State					
8	694,638	346,576	~49.89	Depleted	~13.47
9	240,509	235,162	~97.78	Least Concern	~8.07
522	709,715	709,228	~99.93	Least Concern	~5.53
936	698,752	676,736	~96.85	Least Concern	~3.78
Beard Veg Assoc. - Bioregion					
8	280,248	275,589	~98.34	Least Concern	~9.69
9	240,442	235,101	~97.78	Least Concern	~8.07
522	688,407	687,920	~99.93	Least Concern	~5.71
936	586,792	584,336	~99.58	Least Concern	~2.73

\* Government of Western Australia (2013)

\*\* 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)  
Government of Western Australia (2013)  
GIS Database:  
- Cowan 3234 Mar 2011 Mosaic  
- IBRA WA (Regions - Sub Regions)  
- Pre-European Vegetation

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

**Comments Proposal is at variance to this Principle**

There are four minor, non-perennial watercourses that intersect the application area (GIS Database). The application area is also located in close proximity to Lake Cowan (approximately 1.5 kilometres from the main lake body at its closest point), a non-perennial salt lake (GIS Database). Available databases show the minor, non-perennial watercourses flow into Lake Cowan (GIS Database).

According to GHD (2014), drainage lines within the majority of the Lake Cowan project area are poorly defined and are only likely to flow following major rainfall events. GHD (2014) adds that sheetflow may also occur on the alluvial plains adjacent to the salt lake system following periods of heavy rainfall. Lake Cowan covers an area of approximately 446,000 hectares and is predominantly dry but may contain water following heavy rainfall (GHD, 2014).

None of the vegetation groups mapped by NVS (2014b) were identified as riparian. According to NVS (2014b), the application area at its closest point lies 150 metres west of a spur of the Lake Cowan shoreline and does not impinge on any shoreline vegetation. One of the minor, non-perennial watercourses flows through the application area into this spur (GIS Database). Aerial imagery indicates the presence of vegetation growing in association with this watercourse (GIS Database). Potential impacts to this watercourse and other watercourses and associated vegetation may be minimised by the implementation of a watercourse management condition.

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

**Methodology** GHD (2014)  
NVS (2014b)  
GIS Database:  
- Cowan 3234 Mar 2011 Mosaic  
- 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 may be at variance to this Principle**

The application area is located within the Kambalda Soil-Landscape Zone (Tille, 2006). This zone is characterised by flat to undulating plains (with hills, ranges and some salt lakes and stony plains) on greenstone and granitic rocks of the Yilgarn Craton (Tille, 2006). The application area is also broadly mapped as occurring on the Binneringie, Gumland and Moriarty Land Systems (GIS Database). The Binneringie Land System is described as hills and plains supporting dense tall acacia shrubland with scattered Eucalypt trees (GIS Database). The Gumland Land System is described as extensive pediplains supporting Eucalypt woodlands with halophytic and non-halophytic shrub understoreys (GIS Database). The Moriarty Land system is described as low greenstone rises and stony plains supporting chenopod shrublands with patchy Eucalypt overstoreys (GIS Database).

Clearing of native vegetation poses a risk of land degradation through erosion, particularly in the vicinity of watercourses where localised erosion and sedimentation is likely to occur following heavy rainfall. Lake Cowan, a wetland of subregional significance (CALM, 2002), is located in close proximity to the application area and management may be needed to ensure increased sedimentation does not affect the local area. Potential impacts from land degradation as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

The application area has an annual average evaporation rate of approximately eight times the annual average rainfall (GIS Database). Based on this information, surface flows during normal rainfall events are likely to be short lived and recharge to groundwater would be considered minimal. This would reduce the likelihood of salinity increasing as a result of the proposed clearing.

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

**Methodology** CALM (2002)  
Tille (2006)  
GIS Database:  
- Evaporation Isopleths  
- Rainfall, Mean Annual  
- Rangeland Land System Mapping

**(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 does not lie within any conservation areas or Department of Parks and Wildlife managed lands (GIS Database). The nearest conservation area is Binaronca Nature Reserve, which is located approximately 5.5 kilometres west of the application area (GIS Database). Given the distance between the application area and the nearest conservation area, the proposed clearing is not likely to impact on the environmental values of the Binaronca Nature Reserve.

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). There are no permanent waterbodies or watercourses within the application area, however, there are four minor non perennial watercourses within the application area and Lake Cowan, a non-perennial salt lake, occurs in close proximity to the application area (GIS Database). Clearing in the vicinity of these may result in localised erosion and sedimentation, particularly following heavy rainfall. Potential impacts to the surface water quality as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition and a watercourse management condition.

The climate of the area is semi-arid warm Mediterranean with winter rainfall (CALM, 2002). The application area receives an average annual rainfall of approximately 300 millimetres with an average annual evaporation rate of between 2,400 and 2,500 millimetres (GIS Database). Any surface flows are therefore likely to be short lived.

According to available databases, groundwater salinity within the application area is between 14,000 and 35,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). This is considered to be saline. Given the high TDS, the proposed clearing is not likely to cause groundwater salinity levels within the application area to alter.

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

**Methodology** CALM (2002)  
GIS Database:  
- Evaporation Isopleths  
- Geodata, Lakes  
- Groundwater Salinity, Statewide  
- Hydrography, linear  
- Public Drinking Water Source Areas (PDWSAs)  
- Rainfall, Mean Annual

**(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 Balladonia and Lake Lefroy catchment areas (GIS Database). Given the size of the area to be cleared (24.9 hectares) in relation to the size of the catchment areas (2,488,250 hectares and 3,483,410 hectares) (GIS Database), the proposed clearing is not likely to increase the potential of flooding on a local or catchment scale.

With an average annual rainfall of 300 millimetres and an average annual evaporation rate of between 2,400 and 2,500 millimetres there is likely to be little surface flow during normal seasonal rains (GIS Database). Whilst large rainfall events may result in flooding of the area, the proposed clearing is not likely to lead to an increase in incidence or intensity of flooding.

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

**Methodology** GIS Database:  
- Evaporation Isopleths  
- Hydrographic Catchments - Catchments  
- Rainfall, Mean Annual

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

**Comments**

There are two native title claims in the area under application: WC 1997/100 and WC1999/002 (GIS Database). One claim has been filed at the Federal Court and the other registered with the Native Title Tribunal on behalf of the claimant group. 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 Regulation, the Department of Parks and Wildlife 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 2 June 2014 by the Department of Mines and Petroleum inviting submissions from the public. There were no submissions received.

**Methodology** GIS Database:  
- Aboriginal Sites of Significance

- Native Title Claims – Filed at the Federal Court
- Native Title Claims – Registered with the NNTT

#### 4. References

- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Department of Conservation and Land Management.
- DEC (2014) NatureMap - Mapping Western Australia Biodiversity, Department of Environment and Conservation. <http://naturemap.dec.wa.gov.au/default.aspx>, viewed 3 July 2014.
- 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.
- Department of the Environment (2014) *Leipoa ocellata* — *Malleefowl*. URL: [http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon\\_id=934](http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=934), viewed 3 July 2014. Department of the Environment.
- GHD (2014) Metals X Limited Lake Cowan Project Area Desktop Assessment and Broadscale Mapping. Unpublished report prepared by GHD for Metals X Limited dated February 2014.
- Government of Western Australia (2013) 2012 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2012. WA Department of Environment and Conservation, Perth.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- NVS (2014a) Further Information provided by Native Vegetation Solutions for clearing permit application CPS 6123/1 on 9 July 2014.
- NVS (2014b) Level 1 Flora and Vegetation Survey of the Proposed Lake Cowan Haul Road Higginsville Gold Operation (Proposed Miscellaneous License L15/346). Unpublished report prepared by Native Vegetation Solutions for Metals X Limited Avoca Mining Pty Ltd dated February 2014.
- Tille, P. (2006) Soil-landscapes of Western Australia's Rangelands and Arid Interior. Technical Report 313. Department of Agriculture and Food, Western Australia. ISSN 1039-7205.

#### 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.