Government of **Western Australia**
Department of **Mines and Petroleum**

# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

**Permit application No.:** 5658/1
**Permit type:** Purpose Permit

### 1.2. Proponent details

**Proponent's name:** **Venturex Sulphur Springs Pty Ltd**

### 1.3. Property details

**Property:** Mining Lease 45/494
Mining Lease 45/653
Mining Lease 45/1001
Miscellaneous Licence 45/170
Miscellaneous Licence 45/173
Miscellaneous Licence 45/189
**Local Government Area:** Shire of East Pilbara
**Colloquial name:** Sulphur Springs Copper-Zinc Project

### 1.4. Application

| Clearing Area (ha) | No. Trees | Method of Clearing | For the purpose of: |
|---|---|---|---|
| 193 | | Mechanical Removal | Mineral Production |

### 1.5. Decision on application

**Decision on Permit Application:** Grant
**Decision Date:** 15 August 2013

## 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. Two Beard vegetation associations have been mapped within the application area (GIS Database):

82: Hummock grasslands, low tree steppe; snappygum over *Triodia wiseana*; and

93: Hummock grasslands, shrub steppe; kanji over soft spinifex.

There have been a number of flora and vegetation surveys conducted over the Sulphur Springs area. The most recent survey was a Level 1 survey conducted by Outback Ecology in August 2012. From all surveys conducted the following 18 vegetation associations have been identified within the application area (Outback Ecology, 2013):

**Open Forest to Open Woodland: Flowlines**

1. Open forest to open woodland of *Eucalyptus camaldulensis, Melaleuca argentea* and *Eucalyptus victrix* with scattered tall shrubs of *Indigofera monophylla* over *Schoenus falcatus, Cyperus vaginatus* and *Triodia longiceps* sedgeland/grasslands in river beds.

**Open Forest to Open Woodland: Other**

2. *Eucalyptus victrix* scattered trees to open woodland which may include *Melaleuca glomerata* and *Melaleuca linophylla* over open to closed scrub in creek beds and low slopes.

3. *Corymbia aspera* scattered low trees to low open woodland in creek beds.

4. *Acacia tumida* high shrubland to low open forest in creeklines.

5. *Eucalyptus leucophloia* scattered low trees over patches of Acacia shrubs over hummock grasslands of *Triodia* species, including *T. brizoides, T. wiseana* and *T. epactia* on ridge slopes.

6. *Corymbia hamersleyana* scattered low trees to low open woodland over tall shrubs to open shrubland of Acacia spp. and *Grevillea wickhamii* over hummock grasslands on creek banks, flood banks and distributing fans.

7. *Corymbia zygophylla* and *Corymbia hamersleyana* scattered low trees over hummock grasslands on

sandplains.

8. *Terminalia canescens* scattered low trees to low woodland on creek banks.

9. *Atalaya hemiglauca, Acacia pruinocarpa, Ehretia saligna var. saligna, Acacia tumida, Eucalyptus ferriticola subsp. ferriticola* and *Ficus platypoda* scattered low trees over high open shrubland on steep, rocky gorge walls.

**High Shrublands to Open Shrublands**

10. Shrubland to open scrubland of Acacia species including *A. tumida, A.acradenia* and *A. orthocarpa* over hummock grasslands on upper and steep slopes.

11. Shrubland to closed scrubland of Acacia species, including *A. acradenia, A. pyrifolia* and *A. tumida* along small creeklines and on the adjacent parts of valley floors and distributing fans.

12. *Acacia inaequilatera* scattered tall shrubs to high open shrubland over *Triodia brizoides* hummock grasslands on ridge slopes and low hills.

13. *Acacia inaequilatera* scattered tall shrubs to high shrubland over *Triodia wiseana* hummock grasslands occurring mainly on gentle lower slopes.

14. *Acacia ancistrocarpa* high open shrubland to open scrub.

15. *Acacia trachycarpa* high open shrubland to high shrublands.

**Low Shrublands to Low Open Heaths**

16. Low shrublands to low open heath on gentle slopes and undulating plains.

**Hummock Grasslands**

17. Hummock grasslands on slopes and ridges.

**Other Grasslands and Herblands**

18. Cracking clay alliance on gentle sloping plains and seasonal damplands.

**Clearing Description**

Venturex Sulphur Springs Pty Ltd (Venturex) has applied to clear up to 193 hectares within an application area of 1,190 hectares (GIS Database). The application area is located approximately 55 kilometres west of Marble Bar (GIS Database). The proposed clearing is for the establishment of an underground copper-zinc mine which includes tailings storage facilities, run of mine pads, a power station, an airstrip, accommodation, processing plant and access roads (Venturex, 2013).

**Vegetation Condition**

Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994);

to

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

**Comment**

The vegetation condition was derived from a report prepared by Outback Ecology (2013).

There was lower than average rainfall for the three months prior to the survey undertaken by Outback Ecology in August 2012. This may mean that some annual species were not recorded (Outback Ecology, 2013).

## 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 at variance to this Principle**

The flora and vegetation survey undertaken by Outback Ecology (2013) identified 13 different vegetation associations within the application area. The majority of the vegetation within the application area is in 'excellent' condition (Outback Ecology, 2013). None of the vegetation associations were identified as being a Threatened or Priority Ecological Community (Outback Ecology, 2013). Vegetation associations 1 and 2 were identified as being potential groundwater dependent ecosystems (Outback Ecology, 2013). The greatest threat to these communities is the lowering of groundwater levels. The proposed clearing is not likely to have an impact on groundwater levels within the local area.

A total of 74 flora taxa from 15 families and 40 genera were recorded by the flora survey undertaken by Outback Ecology (2013). All surveys over the Sulphur Springs area have recorded a total of 549 flora taxa of which 460 can be regarded as taxonomically unique (Outback Ecology, 2013). This is a high species count that is due to the size of the survey areas and its location within in area of significant habitat and geological diversity (Trudgen, 2007). The Priority Flora species *Euphorbia clementii* (Priority 2) has been recorded within the application area (Trudgen, 2007). This species was recorded at three locations in the north of the application area and will be impacted by the proposed airstrip (Outback Ecology, 2013). There were two individuals recorded at one location and single plants recorded at the other two (Trudgen, 2007). A population of over 5,000 plants was recorded approximately 300 metres east of the application area. Current information suggests that this species occurs in large populations when suitable habitat has been burnt and followed by rain (Trudgen, 2007). The area around the proposed airstrip has not been burnt recently and it is likely that this

area contains habitat for a significant sized population of *Euphorbia clementii* (Trudgen, 2007). There are significant areas of the vegetation association where this species was recorded mapped outside the application area (Outback Ecology, 2013). The Priority Flora species *Acacia glaucocaesia* (Priority 3) and *Ptilotus mollis* (Priority 4) were both recorded within 300 metres of the application area (Trudgen, 2007). Whilst they were not within the application area the proposed clearing may remove habitat for these species. However, the proposed clearing is not likely to significantly impact these two species.

There has been five broad fauna habitats mapped within the application area (Outback Ecology, 2013). The majority of these habitats are widespread throughout the application area and common in the region. The Drainage Line and Rocky Ridges and Gorges habitat are restricted in the region and provide habitat for several conservation significant fauna species (Outback Ecology, 2013). As they contain refuge and water sources they are also likely to support higher levels of fauna species in the local area. There are only relatively minor amounts of these habitats proposed to be cleared by the proposed activities (Venturex, 2013).

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

**Methodology** Outback Ecology (2013)
Trugden (2007)
Venturex (2013)

**(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 at variance to this Principle**

There have been several fauna studies previously undertaken over the Sulphur Springs area (Outback Ecology, 2012). The most recent was a Level 1 fauna survey undertaken by Outback Ecology in 2012. Based on the findings of these surveys, there has been five broad fauna habitats identified within the application area (Outback Ecology, 2012):

- Spinfex Stony Plains;
- Rocky Foothills;
- Scree Slope;
- Drainage Line; and
- Rocky Ridges and Gorges.

The Spinifex Stony Plains, Rocky Foothills and Scree Slope habitat are all considered to be widespread and not restricted within the region (Outback Ecology, 2012). These habitats cover the majority of the application area. Drainage line habitat is important for fauna as it provides a range of microhabitats and a stable source of resources (Outback Ecology, 2012). This habitat also provides linkages between other permanent sources of food and water and is important for allowing fauna to move throughout the landscape (Outback Ecology, 2012). The proposed activities within this habitat are primarily for access roads. It is important that the proposed clearing does not impede the flow of surface water throughout this habitat. Potential impacts to this habitat may be minimised by the implementation of a condition restricting the clearing within this habitat. The Rocky Ridges and Gorges habitat is relatively uncommon in the region and occurs in patches within the application area (Outback Ecology, 2012). This habitat type is important for fauna as it includes habitat features that provide shelter and denning sites. It is likely to be significant for several conservation significant species. There was 211 hectares of this habitat mapped within the survey boundary which also included areas outside the application area (Outback Ecology, 2012). There is 0.4 hectares of Rocky Ridges and Gorges habitat within the current project footprint (Venturex, 2013). Potential impacts to this habitat may be minimised by restricting clearing within this habitat.

A number of conservation significant fauna species have been recorded within the application area (Outback Ecology, 2012):

- Northern Quoll (*Dasyurus hallucatus* – Schedule 1; Endangered)
- Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia* – Schedule 1; Vulnerable)
- Spectacled Hare-wallaby (*Lagorchestes conspicillatus leichardti* – Priority 3)
- Western Pebble-mound Mouse (*Pseudomys chapmani* – Priority 4)
- Ghost Bat (*Macroderma gigas* – Priority 4)
- Australian Bustard (*Ardeotis australis* – Priority 4)
- Bush Stone-curlew (*Burhinus grallarius* – Priority 4)
- Rainbow Bee-eater (*Merops ornatus* – Schedule 3; Migratory)

Given their distribution and dispersal ability, the proposed clearing is not expected to have a significant impact on the Australian Bustard, Rainbow Bee-eater, Bush Stone-curlew and Spectacled Hare-wallaby. The Western Pebble-mound Mouse is most commonly found in the Scree Slope habitat and also in the Spinifex Stony Plain habitat where it constructs its characteristic mounds (Outback Ecology, 2012). Similar habitat for this species is common throughout the Pilbara bioregion and the proposed clearing is not expected to have a significant impact on habitat for the Western Pebble-mound Mouse.

The Rocky Ridges and Gorges habitat has the potential to support caves that could be utilised by Pilbara Leaf-nosed Bats and Ghost Bats. Observations during fauna surveys suggest that there are only minor caves within this habitat and if they were utilised by bats they would be used as foraging or night roosts only (Outback

Ecology, 2012). The Rocky Ridges and Gorge habitat is also significant for the Northern Quoll as it provides suitable denning habitat and permanent water (Outback Ecology, 2012). The Drainage Line habitat may also support permanent residents and contain denning sites in tree hollows (Outback Ecology, 2012). The remaining habitats within the application area are likely to be utilised by the Northern Quoll for foraging. Whilst not recorded within the application area the Pilbara Olive Python (*Liasis olivaceus barroni* – Schedule 1; Vulnerable) is considered very likely to be present within the application area (Outback Ecology, 2012). Gorge habitat is significant for the Pilbara Olive Python as it provides shelter and water sources (Outback Ecology, 2012). Potential impacts to these species may be minimised by the implementation of a condition restricting the clearing within the Rocky Ridges and Gorges and Drainage Line habitat.

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

**Methodology** Outback Ecology (2012)
Venturex (2013)

**(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 any Threatened Flora species within the application area (DEC, 2013; GIS Database). The flora survey of the application area did not record any Threatened Flora species (Outback Ecology, 2013).

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

**Methodology** DEC (2013)
Outback Ecology (2013)
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 records of any Threatened Ecological Communities (TECs) within the application area (GIS Database). The vegetation survey of the application area did not identify any communities as a TEC (Outback Ecology, 2013).

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

**Methodology** Outback Ecology (2013)
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 Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 99.6% of the pre-European vegetation remains (see table) (GIS Database, Government of Western Australia, 2013).

The vegetation of the application area has been broadly mapped as Beard vegetation associations 82 and 93 (GIS Database). These vegetation associations have not been extensively cleared as over 99% remains at both a State and bioregional level (see table) (Government of Western Australia, 2013). There has not been extensive clearing in the local region and vegetation within the application area is not a remnant nor does it form part of any remnants within the local area (GIS Database).

| | Pre-European area (ha)* | Current extent (ha)* | Remaining %* | Conservation Status** | Pre-European % in DEC Managed Land |
|---|---|---|---|---|---|
| IBRA Bioregion – Pilbara | 17,808,657 | 17,733,583 | ~99.6 | Least Concern | 8.37 |
| Beard veg assoc. – State | | | | | |
| 82 | 2,565,901 | 2,553,217 | ~99.5 | Least Concern | 10.51 |
| 93 | 3,044,309 | 3,040,641 | ~99.9 | Least Concern | 1.96 |
| Beard veg assoc. – Bioregion | | | | | |
| 82 | 2,563,583 | 2,550,898 | ~99.5 | Least Concern | 10.52 |
| 93 | 3,042,114 | 3,038,471 | ~99.9 | Least Concern | 1.96 |

* 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:
- IBRA WA (Regions - Sub Regions)
- Northshaw 80cm Orthomosaic
- 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 numerous ephemeral watercourses that pass through the application area (GIS Database). Vegetation associations 1, 2, 3, 4, 6, 8 and 11 were identified as occurring within river and creek environments (Outback Ecology, 2013). Vegetation associations 1 and 2 were identified as having very high and high probabilities of being groundwater dependent ecosystems respectively (Outback Ecology, 2013). The proposed clearing is unlikely to have any impact on the groundwater levels within the application area. The majority of the potential groundwater dependant vegetation is associated with the mapped drainage line fauna habitat. The proposed activities within this watercourse are for access roads (Venturex, 2013). Provided these access roads don't impede the flow of surface water, there is not likely to be a significant impact on this watercourse. Potential impacts to riparian 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** Outback Ecology (2013)
Venturex (2013)
GIS Database:
- Hydrography, linear

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

**Comments** **Proposal is not likely to be at variance to this Principle**
The application area is mapped as occurring on the Boolgeeda, Capricorn and Rocklea land systems (GIS Database). All three land systems are generally not susceptible to erosion (Van Vreeswyk et al., 2004). Excessive clearing along drainage lines may lead to increased erosion if left uncleared. The proposed clearing within the most significant drainage areas is for the purpose of access roads. Leaving large areas of land open can increase the risk of wind and water erosion. Potential impacts from erosion may be minimised by the implementation of a soil management condition and restricting the clearing within watercourses.

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

**Methodology** Van Vreeswyk et al. (2004)
GIS Database:
- 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 conservations areas or Department of Parks and Wildlife managed lands (GIS Database). The nearest conservation area is Mungaroona Range Nature Reserve located approximately 90 kilometres southwest of the application area (GIS Database). At this distance the proposed clearing is not likely to have any impacts on the environmental values of the 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**

The application is not located within Public Drinking Water Source Area (PDWSA) (GIS Database). There are no permanent watercourses within the application area (GIS Database). Proposed activities within the most significant drainage line will be limited to access roads. The majority of the surface water within the application area is likely to occur as sheet flow following heavy rains. Potential impacts to surface water quality may be minimised by the implementation of a watercourse management condition.

The groundwater within the application area is between 500 – 1,000 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database). This is considered to be potable water. It would not be expected that the proposed clearing would cause salinity levels within the application or surrounding area to alter.

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

**Methodology**

GIS Database:
- Groundwater Salinity, Satewide
- 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**

With an average annual rainfall of 400 millimetres and an average annual evaporation rate of 3,600 millimetres there is likely to be little surface flow during normal seasonal rains (GIS Database). Whilst large rainfall events may result in the 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
- Mean Average Rainfall

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

**Comments**

There are three native title claims (WC99/8; WC00/5; WC95/61) over the application area (GIS Database). These claims have been registered with the National Native Title Tribunal on behalf of the claimant groups (GIS Database). However, the 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*.

According to available databases, 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 (formerly 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.

It is noted that the proposed clearing may impact on a protected matter under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). The project was referred to the (Federal) Department of Sustainability, Environment, Water, Population and Communities (SEWPAC) on 11 June 2013. The proposed action was deemed to not be a controlled action under the EPBC Act.

The clearing permit application was advertised on 15 July 2013 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 – Registered with the NNTT

## 4. References


DEC (2013) NatureMap: Mapping Western Australia's Biodiversity - Department of Environment and Conservation. http://naturemap.dec.wa.gov.au/default.aspx (Accessed 28 June 2013).

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.

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.

Outback Ecology (2012) Venturex Resources Limited Pilbara Copper-Zinc Project Terrestrial Vertebrate Fauna Impact Assessment. Unpublished report for Venturex Resources Limited, dated November 2012.

Outback Ecology (2013) Venturex Reources Limited Pilbara Copper Zinc Project Level 1 Vegetation and Flora Survey. Unpublished report for Venturex Resources Limited, dated January 2013.

Trudgen, M. (2007) Supplementary Botanical Surveys, Rare Flora Searches, Assessment of Vegetation Condition and Identification of Groundwater Dependent Ecosystems for the Sulphur Springs Project. Unpublished report for CBH Resources dated July 2007.

Van Vreeswyk, A.M.E., Payne, A.L., Leighton, K.A. and Hennig, P. (2004) Technical Bulletin - An Inventory and Condition Survey of the Pilbara Region, Western Australia, No. 92. Department of Agriculture, Government of Western Australia, Perth, Western Australia.

Venturex (2013) Supporting information for a clearing permit application, dated June 2013.


## 5. Glossary

### Acronyms:

| | |
|---|---|
| **BoM** | Bureau of Meteorology, Australian Government |
| **CALM** | Department of Conservation and Land Management (now DEC), Western Australia |
| **DAFWA** | Department of Agriculture and Food, Western Australia |
| **DEC** | Department of Environment and Conservation, Western Australia |
| **DEH** | Department of Environment and Heritage (federal based in Canberra) previously Environment Australia |
| **DEP** | Department of Environment Protection (now DEC), Western Australia |
| **DIA** | Department of Indigenous Affairs |
| **DLI** | Department of Land Information, Western Australia |
| **DMP** | Department of Mines and Petroleum, Western Australia |
| **DoE** | Department of Environment (now DEC), Western Australia |
| **DoIR** | Department of Industry and Resources (now DMP), Western Australia |
| **DOLA** | Department of Land Administration, Western Australia |
| **DoW** | Department of Water |
| **EP Act** | Environmental Protection Act 1986, Western Australia |
| **EPBC Act** | Environment Protection and Biodiversity Conservation Act 1999 (Federal Act) |
| **GIS** | Geographical Information System |
| **ha** | Hectare (10,000 square metres) |
| **IBRA** | Interim Biogeographic Regionalisation for Australia |
| **IUCN** | International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union |
| **RIWI Act** | Rights in Water and Irrigation Act 1914, Western Australia |
| **s.17** | Section 17 of the Environment Protection Act 1986, Western Australia |
| **TEC** | 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:<br>(a) is not critically endangered or endangered; and<br>(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. |