



## 1. Application details

### 1.1. Permit application details

Permit application No.: 2793/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Kagara Nickel Limited

### 1.3. Property details

Property: Mining Lease 77/99  
Local Government Area: Shire of Kondinin  
Colloquial name: Exploration Drilling M77/99

### 1.4. Application

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

## 2. Site Information

### 2.1. Existing environment and information

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

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Beard Vegetation Associations have been mapped at a 1:250,000 scale for the whole of Western Australia. One Beard Vegetation Association has been mapped within the application area (GIS Database; Shepherd et al., 2001).	The applicant has applied to clear 2.12 hectares of native vegetation for the purpose of mineral exploration (evaluation drilling). Kagara Nickel Limited intend to establish drill lines with a backhoe or loader.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).	The vegetation condition was derived from a vegetation survey conducted by Botanica Consulting (2008).

511: Medium woodland; salmon gum & morrel.

The application area was surveyed by Botanica Consulting staff in October 2008 (Botanica Consulting, 2008). The following vegetation type was identified within the application area.

**Eucalyptus Mallee Woodland:** Dominant upper storey comprised of *Eucalyptus salmonophloia*, with other upper storey species including *E. urna* and *E. eremophila* over a midstorey of *Acacia hemiteles*, *Melaleuca adnata* and *Senna artemisioides* subsp. *filifolia* over an understorey comprised of *Hibbertia pungens*, *Swainsona purpurea* and *Lepidosperma drummondii*.

## 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 Southern Cross (COO2) sub-region of the Coolgardie Bioregion of the Interim Biogeographic Regionalisation of Australia (IBRA) (GIS Database). This sub-region is characterised by subdued relief, comprising of gently undulating lands dissected by broad valleys with bands of low greenstone hills (CALM, 2002). The valleys of this sub-region have Quaternary duplex and gradational soils, with chains of saline playa-lakes supporting dwarf shrub lands of samphire. Around these lakes, diverse Eucalyptus woodlands, rich in endemic eucalypts occur on the low greenstone hills, valley alluvials and broad plains of calcareous earth (CALM, 2002). At mid-level, the granite basement outcrops and supports swards of *Borya constricta*, with stands of *Acacia acuminata* and *Eucalyptus loxophleba*, while the upper-levels are comprised of the eroded remnants of a lateritic duricrust giving way to yellow sand-plains, gravely sand-plains and lateritic breakaways. Mallees and scrub-heaths occur on the up lands and sand lunettes associated with playas along the broad valley floors and sand sheets around the granite outcrops (CALM, 2002). The vegetation described within the application area by Botanica Consulting, 2008 is typical of the bioregion.

The application area occurs within the Lake Cronin Red Book Area which is listed on the Register of National Estate for its high level of flora and fauna diversity and endemism. According to the Australian Heritage Database (2008), 16 fauna species that are endemic to either the south-west region or to Western Australia occur within the Lake Cronin area. The Lake Cronin area is also described as being an important refuge for rare species due to widespread clearing in the wheatbelt to the west. Rare species include fauna such as the Malleefowl (*Leipoa ocellata*) and flora species such as *Eucalyptus steedmanii*.

A vegetation survey of the application area identified 45 species of native flora belonging to 19 genera from 16 families (Botanica Consulting, 2008). This is not considered to be biologically diverse. Myrtaceae (16), Mimosaaceae (7) and Proteaceae (3) families were the most diverse within the survey area (Botanica Consulting, 2008). This is atypical of the floristics of the Southern Cross IBRA sub-region.

One introduced species was recorded during the survey (Botanica Consulting, 2008). This species is not listed as a 'Declared Plant' species under the *Agriculture and Related Resources Protection Act 1976* by the Department of Agriculture and Food. Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. This in turn can lead to greater rates of infestation and further loss of biodiversity if the area is subject to repeated fires. It is not expected that the clearing of vegetation will increase the incidence of these weed species within the application area or surrounding vegetation, but should a clearing permit be granted, it is recommended that a condition be imposed for the purposes of weed management.

An area search of the Western Australian Museum's Faunabase conducted by the assessing officer suggests that the application area is diverse in reptile species, particularly Skinks (16) (Western Australian Museum, 2008). The database search found 46 reptile species from 7 families as potentially occurring within the application area, or within a 50 kilometre radius of the application area.

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

**Methodology** Australian Heritage Database (2008)  
Botanica Consulting (2008)  
CALM (2002)  
Western Australian Museum (2008)  
GIS Database  
- Interim Biogeographic Regionalisation of Australia  
- Clearing Regulations - Environmentally Sensitive Areas

**(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 may be at variance to this Principle**

The assessing officer has conducted a search of the Western Australian Museum's online fauna database between the co-ordinates 120.2300°E, 31.9237°S and 119.1457°E, 32.8410°S, representing a 50 kilometre radius around the application area.

This search identified 11 Amphibian, 24 Avian, 16 Mammalian and 46 Reptilian species that may occur within the application area (Western Australian Museum, 2008). Of these, the following species of conservation significance have previously been recorded within the search area: Lake Cronin Snake (*Paroplocephalus atriceps*), Western Mouse (*Pseudomys occidentalis*), Heath Rat (*Pseudomys shortridgei*), Rufous Fieldwren (*Calamanthus campestris*), Brush Bronzewing (*Phaps elegans*), Malleefowl (*Leipoa ocellata*), Crested Shrike Tit (*Falcunculus frontatus*) and the Western Rosella (*Platycercus icterotis*).

Based on habitat requirements, the following species are most likely to occur within the application area:

The Heath Rat (Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protect Fauna) Notice, 2008*) is known to occupy variable habitats. In Western Australia it prefers mature stands of scrub mallee and mixed scrub Banksia on loamy soils, unburnt for at least 30 years (DEC, 2008a). This species does not have a restricted range and the vegetation types that comprise its habitat are well represented throughout the bioregion, and the small area proposed to clear (2.12 hectares) in relation to the size of the sub-region (7,041,232 hectares) it is unlikely that the application area contains significant habitat for this species.

Malleefowl (Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*) are largely confined to arid and semi-arid woodland that is dominated by mallee eucalypts on sandy soils, with less than 430 millimetres of rainfall annually (DEC, 2008b). However, they can also occur in habitats of acacia, paperbark, she-oak and other scrubs as well as eucalypt woodland and coastal heaths with an abundant layer of leaf litter for use in nest mounds (Garnett & Crowley, 2000). It is unlikely that the application area would provide significant habitat for this species given the vegetation types are well represented within the bioregion and the area proposed to clear is small (2.12 hectares) in relation to the size of the sub-region (7,041,232 hectares).

The wheat belt species of Western Rosella (Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*) is described as utilising woodland habitat. Threats include clearing for agriculture affecting availability of food and nesting hollows (Garnett & Crowley, 2000). This species has vast amounts of suitable habitat in the bioregion and due to the small nature of the application area (2.12 hectares) in relation to the larger sub-region (7,041,232 hectares) it is unlikely that it would provide significant habitat for this species.

The Lake Cronin Snake (P3 - DEC Priority Fauna List) is the rarest elapid snake in Australia. It is known from only five specimens collected in the vicinity of Lake Cronin in south-central Western Australia (Greer, 2006). However, there is little information regarding the habitat requirements of this species. The assessing officer is unable to determine with any certainty whether the vegetation within the application area is significant habitat for this species. The vegetation types found within the application area may provide significant habitat for this species.

The Western Mouse (P4 - DEC Priority Fauna List) prefers long unburnt vegetation on sandy clay loam or sandy loam (DEC, 2008c). Suitable habitat can be varied and includes sparse low shrub land, tall dense shrub land, sparse to dense shrub mallee and mid-dense woodlands, with all preferred habitats having patches of extremely dense vegetation (DEC, 2008c). The soils of the application area are generally sandy and so may provide suitable habitat for this species. Given the small area proposed to clear (2.12 hectares) in relation to the size of the bioregion (7,041,232 hectares) it is unlikely that it would provide significant habitat for the Western Mouse.

The Rufous Fieldwren (P4 - DEC Priority Fauna List) is endemic to the south-western Western Australian wheat belt (Saunders & Ingram, 2000). The species inhabits low, sparse heath, salt marsh or samphire with or without emergent trees (Saunders & Ingram, 2000). The vegetation within the application area provides suitable habitat for this species, however given that the vegetation types are well represented throughout the bioregion and the small area proposed to clear (2.12 hectares) in relation to the size of the sub-region (7,041,232 hectares) it is unlikely that the application area contains significant habitat for this species.

The Crested Shrike-Tit (P4 - DEC Priority Fauna List) is endemic to Western Australia, south-west of a line between Geraldton and Point Culver (Serventy & Whittell, 2000). The Crested Shrike-Tit inhabits eucalypt forest and woodland, favouring smooth barked *Eucalyptus diversicolor*, *E. wandoo*, *E. salmonophloia*, *E. rudis* and *Acacia acuminata* over rough barked species (Serventy & Whittell, 2000). The vegetation within the application area provides suitable habitat for this species, however given that the vegetation types are well represented throughout the bioregion and the small area proposed to clear (2.12 hectares) in relation to the size of the sub-region (7,041,232 hectares) it is unlikely that the application area contains significant habitat for this species.

The Brush Bronzewing (P4 - DEC Priority Fauna List) occupies the south-west corner of Western Australia and inhabits areas with a dense shrub-layer (Birds in Backyards, 2008). This species can also occur in the grassy heath lands near the coast and behind sand dunes, or further inland in wet or dry forests or woodlands including dense mallee (Birds in Backyards, 2008). The vegetation within the application area provides suitable habitat for this species, however given that the vegetation types are well represented throughout the bioregion and the small area proposed to clear (2.12 hectares) in relation to the size of the sub-region (7,041,232 hectares) it is unlikely that the application area contains significant habitat for this species.

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

**Methodology** Birds in Backyards (2008)  
DEC (2008a)  
DEC (2008b)  
DEC (2008c)  
Garnett & Crowley (2000)  
Greer (2006)  
Saunders & Ingram (2000)  
Serventy & Whittell (2000)  
Western Australian Museum (2008)

**(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, no Declared Rare Flora (DRF) species occur within the application area (GIS Database). One population of *Banksia sphaerocarpa* var *dolichostyla* (DRF) and one population of *Eucalyptus steedmanii* (DRF) have been recorded approximately 2.48 kilometres north-west and 4.1 kilometres north-east of the application area respectively (GIS Database).

A flora survey was conducted over the application area by Botanica Consulting in October 2008 (Botanica Consulting, 2008). This survey involved the area being traversed by one team of three people via a four-wheel drive and on foot where appropriate. Different vegetation groups encountered during the survey were described and the vegetation associations were examined for the presence or absence of any DRF and Priority Flora

species (Botanica Consulting, 2008). As a result of this survey one Priority Flora species was identified as occurring within the application area - *Microcorys* sp. *Forrestania* (P4).

*Microcorys* sp. *Forrestania* (V. English 2004) (P4) is a low erect shrub growing to 40 cm tall and flowering January to April (Western Australian Herbarium, 2008). This species appears to thrive after disturbance. This species has previously been recorded from Mt Holland and *Forrestania* (Armstrong, 2006). As *Microcorys* sp. *Forrestania* is a disturbance opportunist, the population size is likely to increase following clearing (Armstrong, 2006), provided the area cleared is rehabilitated.

Based on the above, the proposed clearing is not likely to be at variance to this Principle. It is recommended that should a permit be granted, a condition be imposed on the permit with regard to the stockpiling of all cleared topsoil and vegetation for rehabilitation purposes.

**Methodology** Armstrong (2006)  
Botanica Consulting (2008)  
Western Australian Herbarium (2008)  
GIS Database  
- Declared Rare and Priority Flora List

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

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

A search of available databases reveals that there are no Threatened Ecological Communities (TEC's) within the application area (GIS Database). The nearest TEC is located approximately 43 kilometres to the north of the application area (Parker Range System).

None of the vegetation types identified by Botanica Consulting (2008) are threatened ecological communities or ecological communities at risk.

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

**Methodology** Botanica Consulting (2008)  
GIS Database  
- Threatened Ecological Communities

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

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

The application area falls within the IBRA Coolgardie Bioregion (GIS Database). Shepherd et al. (2001) report that approximately 98.4% of the pre-European vegetation still exists in this Bioregion (see table below). The vegetation in the application area is recorded as Beard Vegetation Association 511: Medium woodland; salmon gum and morrel (GIS Database; Shepherd et al., 2001). According to Shepherd et al. (2001) approximately 93.8% of Beard Vegetation Association 511 remains within the Coolgardie Bioregion.

The vegetation within the application area is not a significant remnant of native vegetation and is within an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% of Pre-European area in IUCN Class I-IV Reserves (and current %)
IBRA Bioregion – Coolgardie	12,912,208	12,707,623	~98.4	Least Concern	~9.7
Beard veg assoc. – State					
511	700,414	493,992	~70.5	Least Concern	~14.1
Beard veg assoc. – Bioregion					
511	464,427	435,796	~93.8	Least Concern	~17.5

\* Shepherd et al. (2001) updated 2005

\*\* 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 et al. (2001)  
GIS Database  
- Pre-European Vegetation  
- Interim Biogeographic Regionalisation for Australia

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

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

According to known GIS datasets, there are no known watercourses or water bodies within the application area (GIS Database).

Lake Cronin is located approximately 6.6 kilometres to the east of the application area and whilst this proposal is within the Red Book Area surrounding Lake Cronin, the loss of 2.12 hectares of vegetation, most of which has previously been disturbed, is not likely to impact on the lake at such a distance.

The vegetation type identified by Botanica Consulting (2008) is not an example of riparian vegetation. Therefore the proposed clearing is unlikely to have any significant impact on any watercourses or wetlands.

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

**Methodology** Botanica Consulting (2008)  
GIS Database  
- Hydrography - Linear  
- ANCA wetlands

**(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**

According to available GIS Databases, there are three soil types (Ms8x, X17 and Ya28) within the application area (GIS Database). These soil types are described as;

- Ms8:
  - (i) on rolling to undulating terrain, brown and grey cracking clays
  - (ii) on rolling areas, similar shallow soils, with a complex association of soils often containing some ironstone gravels;
- X17: On slopes and valleys, sandy, neutral and alkaline yellow mottled soils;
- Ya28: Sandy plains with some clay pans and small salt lakes, dunes and lunettes, with the chief soils being sandy alkaline yellow mottled soils (DAFF, 2008).

Shallow and deep sands have a high risk of wind erodibility and seasonal water logging may occur over the sandy topsoil and clays, whilst cracking clays have a low to moderate risk of wind erodibility (Schoknecht, 2002). However, the linear nature of the clearing suggests that the potential for wind erosion is low and provided the disturbed areas are rehabilitated after drilling is completed there would be minimal risk of increased salinity and/or water logging.

Based on the above, the proposed clearing is not likely to be at variance to this Principle. It is recommended that should a permit be granted, a condition be imposed on the permit with regard to rehabilitation and stockpiling of all cleared topsoil and vegetation.

**Methodology** DAFF (2008)  
Schoknecht (2002)  
GIS Database  
- Soils - Statewide

**(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 occurs within an ESA (Red Book Area), which is a buffer zone surrounding Lake Cronin (GIS Database). At its closest point, the clearing is approximately 6.6 kilometres from Lake Cronin and 3.9 kilometres from the Lake Cronin Nature Reserve boundary (GIS Database).

According to the Australian Heritage Database (DEWHA, 2008) the Lake Cronin Nature Reserve is dominated by mallee and woodland associations. This is the only vegetation type described by Botanica Consulting in their 2008 vegetation survey, as occurring within the application area (Botanica Consulting, 2008). The habitat to be

cleared is therefore well represented within the conservation estate.

Lake Cronin Nature Reserve is surrounded by extensive vegetation and the clearing of up to 2.12 hectares of vegetation at a distance of approximately 3.9 kilometres or greater from the reserve will not significantly affect ecological linkages to the reserve.

Therefore, despite the area being on the Register of National Estate for natural values, it is considered that the clearing to take place is low impact and of a small scale and will not significantly impact on the environmental values of the conservation area, or its buffer zone.

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

**Methodology** Botanica Consulting (2008)  
DEWHA (2008)  
GIS Database  
- Environmentally Sensitive Areas  
- CALM Managed Lands and Waters

**(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 (PDWSA) (GIS Database).

There are no permanent water bodies or watercourses within the application area (GIS Database). The application area is located in an arid to semi-arid warm Mediterranean climate region and experiences an average annual rainfall of approximately 343.6 millimetres, falling mainly during the winter months (CALM, 2002; BOM, 2008). The application area experiences an average annual evaporation rate of approximately 2200 millimetres (Luke et al., 1987). Surface water flow is likely to be low during normal seasonal rains. Therefore, during normal rainfall events, surface water within the application area is likely to evaporate or be utilised by vegetation quickly.

The application area is located within the Yilgarn-Southwest Groundwater Province (GIS Database). The groundwater salinity within the application area is approximately 14,000 - 35,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). Vegetation is not likely to be dependent on groundwater at such a hyper saline level. Given the size of the area to be cleared (2.12 hectares) compared to the size of the Yilgarn-Southwest Groundwater Province (24,601,260 hectares) (GIS Database), the proposed clearing is not likely to cause salinity levels within the application area to alter significantly.

There are no known Groundwater Dependent Ecosystems within the application area (GIS Database).

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

**Methodology** BOM (2008)  
CALM (2002)  
Luke et al. (1987)  
GIS Database  
- Public Drinking Water Source Area  
- Hydrography - Linear  
- Groundwater - Provinces  
- Groundwater Salinity  
- Potential Groundwater Dependent Ecosystems

**(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 Swan Avon-Lockhart Catchment area and the Swan Avon-Yilgarn Catchment area (GIS Database). The small area to be cleared (2.12 hectares) in relation to the size of the Swan Avon-Lockhart Catchment area and the Swan Avon-Yilgarn Catchment areas (2,839,267 and 5,836,045 hectares respectively) is not likely to lead to an increase in flood height or duration (GIS Database).

Low annual rainfall (approximately 343.6 millimetres) (BOM, 2008), high evaporation rates (2200 millimetres/year) (Luke et al., 1987) and the absence of water bodies and watercourses in the application area (GIS Database) would suggest that this area is not subject to flooding.

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

**Methodology** BOM (2008)  
Luke et al. (1987)  
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.

There is one known Aboriginal Sites of Significance (ID\_5761) within the vicinity of the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal 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.

No public submissions were received in regard to this Permit application.

**Methodology** GIS Database  
- Aboriginal Sites of Significance  
- Native Title Claims

#### 4. Assessor's comments

##### Comment

The proposal has been assessed against the Clearing Principles, and the proposal is not at variance to Principle (e), may be at variance to Principles (b) and is not likely to be at variance to Principles (a), (c), (d), (f), (g), (i) and (j).

It is recommended that should a permit be granted, conditions be imposed on the permit with regards to weed management, rehabilitation, recording the areas cleared and reporting.

#### 5. References

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- Luke, G.J., Burke, K.L. and O'Brien, T.M. (1987) Evaporation Data for Western Australia. Resource Management Technical Report No. 65. Department of Agriculture, Western Australia.
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## 6. Glossary

### Acronyms:

<b>BoM</b>	Bureau of Meteorology, Australian Government.
<b>CALM</b>	Department of Conservation and Land Management, Western Australia.
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia.
<b>DA</b>	Department of Agriculture, Western Australia.
<b>DEC</b>	Department of Environment and Conservation
<b>DEH</b>	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
<b>DEP</b>	Department of Environment Protection (now DoE), Western Australia.
<b>DIA</b>	Department of Indigenous Affairs
<b>DLI</b>	Department of Land Information, Western Australia.
<b>DoE</b>	Department of Environment, Western Australia.
<b>DoIR</b>	Department of Industry and Resources, Western Australia.
<b>DOLA</b>	Department of Land Administration, Western Australia.
<b>DoW</b>	Department of Water
<b>EP Act</b>	Environment Protection Act 1986, Western Australia.
<b>EPBC Act</b>	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
<b>GIS</b>	Geographical Information System.
<b>IBRA</b>	Interim Biogeographic Regionalisation for Australia.
<b>IUCN</b>	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
<b>RIWI</b>	Rights in Water and Irrigation Act 1914, Western Australia.
<b>s.17</b>	Section 17 of the Environment Protection Act 1986, Western Australia.
<b>TECs</b>	Threatened Ecological Communities.

### Definitions:

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

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

over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

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

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

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

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

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

- EX**            **Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.
- EX(W)**        **Extinct in the wild:** A native species which:  
(a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or  
(b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
- CR**            **Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
- EN**            **Endangered:** A native species which:  
(a) is not critically endangered; and  
(b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
- VU**            **Vulnerable:** A native species which:  
(a) is not critically endangered or endangered; and  
(b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
- CD**            **Conservation Dependent:** A native species which is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.