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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2846/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Beadell Resources Ltd**

1.3. Property details

Property: Exploration Licence 69/2066
Exploration Licence 69/2067
Exploration Licence 69/2177
Local Government Area: Shire of Ngaanyatjarraku
Colloquial name: West Musgraves Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
17.6		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. Three Beard Vegetation Associations have been mapped within the application area (GIS Database; Shepherd et al., 2001). 18: Low woodland; mulga (*Acacia aneura*); 39: Shrublands; mulga scrub; and 252: Hummock grasslands, shrub steppe; mulga and mallee over soft spinifex. The application area was described by Beadell Resources Ltd (2008) staff (Beadell Resources Ltd, 2008). The following vegetation description was given of the application area. **Low hill ranges rising above flat alluvial plains with occasional minor low crescent shaped dunes:** Flat spinifex open flood plain consistutes approximateky 93% of the application area while the remaining 7% consists of mulga trees and low shrubbery (Beadell Resources Ltd, 2008). No introduced flora species were identified within the application area (Beadell Resources Ltd, 2008).	The applicant has applied to clear 17.6 hectares of native vegetation for the purpose of mineral exploration. Beadell Resources Ltd intend to drill lines and expand and upgrade the existing access tracks from Warburton-Blackstone Road (Beadell Resources Ltd, 2008). Clearing will be done using a front end loader with raised balde and a 2.8 metre bucket width (Beadell Resources Ltd, 2008).	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).	The vegetation condition was derived from information provided by Beadell Resources Ltd (2008).

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 Mann-Musgrave Block (CR1) sub-region of the Central Ranges Interim Biogeographic Regionalisation of Australia (IBRA) (GIS Database). This sub-region is characterised by a high proportion of Proterozoic ranges including both volcanic and quartzites and derived soil plains, interspersed with red Quarternary sandplains with some permian exposure (CALM, 2002). The sandplains support low open woodlands of either Desert Oak or Mulga over *Triodia basedowii* hummock grasslands (CALM, 2002). Low open woodlands of Ironwood and Corkwoods over tussock and hummock grasses often fringe the ranges (CALM, 2002). The ranges support mixed wattle scrub or *Callitris glaucophylla* woodlands over hummock and tussock grasslands (CALM, 2002). Beadell Resources Ltd (2008) described the vegetation of the application area as Spinifex plain with 7% being mulga trees and shrubbery. This vegetation description is typical of the bioregion.

The application area occurs within the Ranges of the Western Desert which is listed on the Register of National Estate for its colourful and spectacular scenery and endemic and rare flora species (Australian Heritage Database, 2009).

No weed species have been observed within the application area and so it is not expected that the clearing of vegetation will increase the incidence of 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 (Beadell Resources Ltd, 2008).

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 (13) (Western Australian Museum, 2009). The database search found 44 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 (2009)
CALM (2002)
Beadell Resources Ltd (2008)
Western Australian Museum (2009)
GIS Database
- Interim Biogeographic Regionalisation of Australia

(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

The assessing officer has conducted a search of the Western Australian Museum's online fauna database between the co-ordinates 127.8420°E, 25.6408°S and 126.6177°E, 26.6560°S, representing a 50 kilometre radius around the application area.

This search identified 6 Avian, 8 Mammalian and 44 Reptilian species that may occur within the application area (Western Australian Museum, 2009). Of these, the following species of conservation significance have previously been recorded within the search area: Striated Grasswren (*Amytornis striatus striatus*).

Beadell Resources Ltd (2008) conducted a desktop search of the Department of Environment and Conservation (DEC) threatened fauna database to identify species of conservation significance that had been recorded within the area specified. The co-ordinates used were similar to those used by the assessing officer above. In addition to those species listed above, the following fauna species of conservation significance were identified through this database search:

Crest-tailed Mulgara (*Dasycercus cristicauda*), Golden Bandicoot (*Isoodon auratus auratus*), Bilby (*Macrotis lagotis*), Numbat (*Myrmecobius fasciatus*), Marsupial Mole (*Notoryctes* sp.), Black-footed Rock-wallaby (*Petrogale lateralis* ssp.), Greater Stick-nest Rat (*Leporillus conditor*), Crescent Nailtail Wallaby (*Onychogalea lunata*), Long-tailed Dunnart (*Sminthopsis longicaudatus*), Malleefowl (*Leipoa ocellata*) and the Giant Desert Skink (*Egernia kintorei*).

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

The Giant Desert Skink (Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*) generally inhabits hummock grass sand plains and adjacent dune field swales while also widely inhabiting sand plains vegetated by Spinifex and scattered shrubs (Environment, 2009a). There is currently a stronghold for the Giant Desert Skink in an area of the Gibson Desert north of Warburton (Environment, 2009a). This indicates that the application area may contain suitable habitat for this species, however it is unlikely that the application area would provide significant habitat given that the

vegetation type is well represented within the bioregion and the application area is located within proximity to the Gibson Desert stronghold.

The Bilby (Schedule 1 - Fauna that is rare or is likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*) was formerly known to occupy habitat ranging from Eucalyptus and Acacia woodlands in the wheat belt of Western Australia to Triodia grasslands in the desert regions (DEC, 2009a). They require sandy or loamy soil in which to burrow and are now only found in habitats which include mulga scrub and hummock grasslands on sand plains or along drainage or salt lake systems in Western Australia (DEC, 2009a). The vegetation within the application area provides suitable habitat for this species, however given that the vegetation type is well represented throughout the bioregion and the small area proposed to clear (17.6 hectares) in relation to the size of the sub-region (4,703,205 hectares) it is unlikely that the application area contains significant habitat for this species.

Marsupial Moles (Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 200*8) inhabit sand dune habitats supporting various Acacias and other shrubs which are often in association with Spinifex (Environment, 2009b). This species may also occur on sandy plains and sandy river flats especially in areas where Aeolian dunes also occur (Environment, 2009b). It is possible that Marsupial Moles may inhabit the application area however it is unlikely that the application area would provide significant habitat for this species given the vegetation type is well represented within the bioregion and the area proposed to clear is small (17.6 hectares) in relation to the size of the sub-region (4,703,205 hectares).

Greater Stick-nest Rats (Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*) inhabit semi-arid to arid environments where there is little or no fresh water (DEC, 2009b). This species may be found within the application area however given the vegetation type is well represented within the bioregion and the area proposed to clear is small (17.6 hectares) in relation to the size of the sub-region (4,703,205 hectares), it is unlikely that the application area would provide 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, 2009c). However, they can also occur in habitats of Acacia, paperbark, Sheoak 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 possible that the Malleefowl may inhabit the application area however it is unlikely that the application area would provide significant habitat for this species given the vegetation type is well represented within the bioregion and the area proposed to clear is small (17.6 hectares) in relation to the size of the sub-region (4,703,205 hectares).

The Long-tailed Dunnart (P3 - DEC Priority Fauna List) is a specialist rock-dwelling species and is known to frequent areas within rugged rocky landscapes that support a low open woodland or shrubland of Acacias with an understorey of Spinifex hummocks (Northern Territory Government, 2009). The vegetation within the application area provides suitable habitat for this species, however given that the vegetation type is well represented throughout the bioregion and the small area proposed to clear (17.6 hectares) in relation to the size of the sub-region (4,703,205 hectares) it is unlikely that the application area contains significant habitat for this species.

Striated Grasswrens (P4 - DEC Priority Fauna List) live on sand plains dominated by mature Triodia hummock grassland with an overstorey of shrubs, usually mallee eucalypts (Environment, 2009b). The vegetation within the application area provides suitable habitat for this species, however given that the vegetation type is well represented throughout the bioregion and the small area proposed to clear (17.6 hectares) in relation to the size of the sub-region (4,703,205 hectares) it is unlikely that the application area contains significant habitat for this species.

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

Methodology

Beadell Resources Ltd (2008)
DEC (2009a)
DEC (2009b)
DEC (2009c)
Environment (2009a)
Environment (2009b)
Garnett & Crowley (2000)
Northern Territory Government (2009)
Western Australian Museum (2009)

(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).

Beadell Resources Ltd (2008) conducted a desktop search of the application area between the coordinates 25°58' - 26°18' S and 127°03' - 127°29' E (DEC, 2008). As a result of this search no DRF or Priority Flora species were identified as occurring within the application area. These results may reflect a lack of survey data rather than a lack of conservation significant flora due to the isolated nature of the application area.

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

Methodology Beadell Resources Ltd (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 Threatened Ecological Community is located approximately 730 kilometres west-south-west of the application area (GIS Database).

None of the vegetation types identified by Beadell Resources Ltd (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 Beadell Resources Ltd (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 Central Ranges Bioregion (GIS Database). Shepherd et al. (2001) report that approximately 100% 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:

18: Low woodland; mulga (*Acacia aneura*);
39: Shrublands; mulga scrub; and
252: Hummock grasslands, shrub steppe; mulga and mallee over soft Spinifex (GIS Database; Shepherd et al., 2001).

According to Shepherd et al. (2001) approximately 100% of Beard Vegetation Association 18, 39 and 252 remains within the Central Ranges Bioregion.

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

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Central Ranges	4,701,518	4,700,202	~100	Least Concern	~0.0
Beard veg assoc. – State					
18	19,892,437	19,890,348	~100	Least Concern	~2.1
39	6,613,602	6,612,496	~100	Least Concern	~7.2
252	141,311	141,311	~100	Least Concern	~0.0
Beard veg assoc. – Bioregion					
18	1,075,927	1,075,161	~99.9	Least Concern	~0.0
39	404,691	404,691	~100	Least Concern	~0.0
252	32,057	32,057	~100	Least Concern	~0.0

* 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) updated (2005)
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 at variance to this Principle

There are several minor non-perennial watercourses running through the application area (GIS Database). The vegetation type identified by Beadell Resources Ltd (2008) as occurring within the application area is not an example of riparian vegetation.

The application area experiences a rainfall of approximately 249 millimetres/year according to the nearest recording station at Warburton Airfield (BoM, 2009). The application area also experiences a pan evaporation rate of approximately 3,200 millimetres/year (Luke et al., 1987). This suggests that any suface water flow would be utilised by vegetation quickly.

Based on the above, the proposed clearing is at variance to this Principle. However, as the minor watercourses located within the application area are only likely to flow following significant rainfall, the proposed clearing is unlikely to result in any significant impact to any watercourse or wetland.

Methodology Beadell Resources Ltd (2008)
BoM (2009)
Luke et al. (1987)
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**
According to available datasets, there are three soil types (AB48, BA37 and MY109) within the application area (GIS Database). These soil types are described as:

AB48 - Very gently undulating plains traversed by longitudunal dunes with the chief soils being the red earthy sands of the interdune areas and the red siliceous sands of the dunes;
BA37 - Ranges and hills mainly on granitic rocks with the chief soils being shallow sands; and
MY109 - Common soils are neutral red earths and red earthy sands on outwash plains and dissected fan and terrace formations flanking ranges or sedimentary and some metamorphic, volcanic and granitic rocks (Bureau of Rural Sciences, 1992)).

Schoknecht (2002) describes these soils as being either red sandy earths or red shallow sands. These have a moderate risk of wind erodibility (Schoknecht, 2002). Red shallow sands have a low water-holding capacity due to the shallow depth of the profile and coarse textures (Schoknecht, 2002).

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. Rehabilitation shall take place within six months of the completion of the activity for which the clearing took place or at an optimal time, and involves re-shaping the surface of each cleared area using the stockpiled topsoil and vegetation.

Methodology Bureau of Rural Sciences (1992)
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 the Ranges of the Western Desert (GIS Database).

According to the Australian Heritage Database (Australian Heritage Database, 2009) the Ranges of the Western Desert are a system of ranges with many gorges and valleys. The ranges are dominated by spinifex steppe, mulga and mallee scrub (Australian Heritage Database, 2009). This is the only vegetation type described by Beadell Resources Ltd in their 2009 vegetation description, as occurring within the application area (Beadell Resources Ltd, 2008). The habitat to be cleared is therefore well represented within the conservation estate.

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.

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

Methodology Australian Heritage Database (2009)
Beadell Resources Ltd (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 region, with a mean rainfall of 200 millimetres comprising of both summer

and winter rain (CALM, 2002). With an average rainfall of approximately 249 millimetres/year (BoM, 2009) and an annual pan evaporation rate of 3,200 millimetres (Luke et al., 1987), there is little surface flow during normal seasonal rains. The proposed clearing is not likely to cause the quality of surface water to deteriorate.

The application area is located within the Musgrave Groundwater Province (GIS Database). The groundwater salinity within the application area is approximately 1,000 - 3,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). Given the size of the area to be cleared (17.6 hectares) compared to the size of the Musgrave Groundwater Province (3,240,458 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 (2009)
CALM (2002)
Luke et al. (1987)
GIS Database
- Geodata, Lakes
- Public Drinking Water Source Area
- 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 on low hill ranges rising above flat alluvial plains with occasional minor low crescent shaped dunes, with the majority of the proposed clearing taking place on open flood plain (Beadell Resources Ltd, 2008). This would suggest that this area may occasionally be subject to flooding. However it is unlikely that small area to be cleared (17.6 hectares) in relation to the size of the Basin Warburton catchment area (17,195,989 hectares) would exacerbate the incidence or intensity of flooding.

Low annual rainfall (approximately 249 millimetres) (BoM, 2009) and high evaporation rates (3,200 millimetres/year) (Luke et al., 1987) indicates that surface water flow is likely to be low during normal rainfall periods, with any surface water within the application area likely to evaporate or be utilised by vegetation quickly.

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

Methodology

Beadell Resources Ltd (2008)
BoM (2009)
Luke et al. (1987)
GIS Database
- Hydrographic Catchments - Catchments

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

Comments

There is one native title claim (WC04_003) over the area under application. This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the tenement 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 is one known Aboriginal Site of Significance located within the application area and several in close proximity (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), is at variance to Principle (f) and is not likely to be at variance to Principles (a), (b), (c), (d), (g), (h), (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

Australian Heritage Database (2009) http://www.environment.gov.au/cgi-bin/ahdb/search.pl?mode=place_detail;search=keyword%3Drawlinson%2520range%3Bkeyword_PD%3Don%3Bkeyword_SS%3Don%3Bkeyword_PH%3Don%3Blatitude_1dir%3DS%3Blongitude_1dir%3DE%3Blongitude_2dir%3DE%3Blatitude_2dir%3DS%3Bin_region%3Dpart;place_id=9861 (Accessed 21 January 2009).

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DEC (2009b) NatureBase - Fauna Species Profiles - Greater Stick-nest Rat (*Leporillus conditor*) www.dec.wa.gov.au/component/option,com_docman/Itenid,/gid,143/task,doc_download/- (Accessed 20 January 2009).

DEC (2009c) NatureBase - Fauna Species Profiles - Malleefowl (*Leipoa ocellata*) www.dec.wa.gov.au/index2.php?option=com_docman&task=doc_view&gid=118&Itenid=1 - (Accessed 20 January 2009).

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Schoknecht N. (2002) Soil Groups of Western Australia. A simple guide to the main soils of Western Australia. Resource Management Technical Report 246. Edition 3

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001a) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia (updated 2005).

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6. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government.
CALM	Department of Conservation and Land Management, Western Australia.
DAFWA	Department of Agriculture and Food, Western Australia.
DA	Department of Agriculture, Western Australia.
DEC	Department of Environment and Conservation
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DoE), Western Australia.
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia.
DMP	Department of Mines and Petroleum
DoE	Department of Environment, Western Australia.

DoIR	Department of Industry and Resources, Western Australia.
DOLA	Department of Land Administration, Western Australia.
DoW	Department of Water
EP Act	Environment Protection Act 1986, Western Australia.
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System.
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	Rights in Water and Irrigation Act 1914, Western Australia.
s.17	Section 17 of the Environment Protection Act 1986, Western Australia.
TECs	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.