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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4631/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **BHP Billiton Minerals Pty Ltd**

1.3. Property details

Property: Exploration Licence 69/2201
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:
5		Mechanical Removal	Mineral Exploration

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 10 November 2011

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 for the whole of Western Australia. One Beard vegetation association has been mapped within the application area: **18:** Low woodland; mulga (*Acacia aneura*) (GIS Database). A flora and vegetation survey of the application area was conducted by botanists from Western Botanical in June and August 2011. Twelve vegetation communities within two landscape unit groups were identified within the application area (Western Botanical, 2011). <u>Hardpan and Drainage</u> **GRMU:** Groved Mulga shrubland. **HPMS:** Hardpan Mulga shrubland. <u>Sand Sheet and Sand Dune</u> **SALTG:** Sandsheet *Acacia ligulata*, *Triodia schinzii*, *Grevillea eriostachya*, *Grevillea juncifolia.* **SAMU:** Sandplain spinifex, Mulga shrubland. **SASH:** Sandplain Myrtaceous heath. **SDAGS:** Sand dune *Acacia*, *Grevillea* shrubland. **SEoTb:**Sandsheet *Eucalyptus oxymitra*, *Triodia basedowii*. **SEoTs:** Sandsheet *Eucalyptus oxymitra*, *Triodia schinzii*. **SMT:** Sandplain *Melaleuca interioris*, *Melaleuca glomerata*, *Triodia basedowii*, *Triodia schinzii*. **STb:** Sandplain *Triodia basedowii* hummock grassland. **STs:** Sandplain *Triodia schinzii* hummock grassland. **MUWA:** Mulga Wanderrie.	BHP Billiton Minerals Pty Ltd has applied to clear up to 5 hectares of native vegetation within an application area totalling approximately 1,461 hectares for the purpose of mineral exploration. The clearing will comprise of drill holes and access tracks. The exploration activities are part of BHP Billiton Minerals Pty Ltd's exploration drilling program in the West Musgraves area, approximately 600 kilometres north-east of Laverton. The vegetation will be cleared using machinery. Vegetation and topsoil will be stockpiled and used in rehabilitation.	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).	The vegetation condition was assessed by botanists from Western Botanical (2011).

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 may be at variance to this Principle

The application area occurs within the Mann-Musgrave Block subregion of the Central Ranges Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion comprises of a high proportion of Proterozoic ranges including both volcanic and quartzites and derived soil plains, interspersed with red Quaternary sandplains with some permian exposure (CALM, 2002). The sandplains support low open woodlands of either Desert Oak or Mulga over *Triodia basedowii* hummock grasslands. Low open woodlands of Ironwood (*Acacia estrophiolata*) and Corkwoods (*Hakea* spp.) over tussock and hummock grasses often fringe the ranges. The ranges support mixed wattle scrub or *Callitris glaucophylla* woodlands over hummock and tussock grasslands (CALM, 2002).

The vegetation within the application area is broadly mapped as Beard vegetation association 18 (GIS Database). This vegetation association is common and widespread throughout the Central Ranges bioregion, with 99.93% of its pre-European vegetation extent remaining (Shepherd, 2009; GIS Database). A flora and vegetation survey of the application area was conducted by Western Botanical botanists in June and August 2011. A total of 154 native plant species were recorded within the application area (Western Botanical, 2011). The most commonly represented families were Poaceae, Fabaceae, Malvaceae and Asteraceae; while the most commonly represented genera were *Acacia*, *Sida*, *Eremophila* and *Chrysocephalum* (Western Botanical, 2011).

No Declared Rare Flora was recorded during the field survey by Western Botanical or have previously been recorded within the application area (Western Botanical, 2011; GIS Database). No Threatened Ecological Communities or Priority Ecological Communities have previously been recorded within the application area (GIS Database).

Two Priority flora species were recorded within the application area during the flora and vegetation survey, *Euphorbia parvicaruncula* (P1) and *Calotis latiuscula* (P3) (Western Botanical, 2011). *Euphorbia parvicaruncula* was recorded as scattered individual plants both within and adjacent to the application area (Western Botanical, 2011). This species is not common in the local Gerar prospect but has recently been found in large numbers in the Jameson region and is widely distributed in central Australia (Western Botanical, 2011). BHP Billiton Minerals Pty Ltd will be avoiding disturbance to this species where possible. *Calotis latiuscula* was noted in abundance on the eastern edge of the application area and populations of this species extended eastwards for several kilometres with thousands of individuals noted (Western Botanical, 2011). Large numbers of this species have also been recorded in recent surveys in the Musgraves area (Western Botanical, 2011). The clearing is unlikely to significantly impact the species in either a local or regional context (Western Botanical, 2011).

Four introduced flora species were recorded within the application area. These weed species were *Acetosa vesicaria*, Buffel Grass (*Cenchrus ciliaris*), Caltrop (*Tribulus terrestris*) and Purslane (*Portulaca oleraceae*) (Western Botanical, 2011). Care must be taken to ensure that the proposed clearing activities do not spread weed species to non-infested areas. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

A search of the Department of Environment and Conservation's (DEC) NatureMap revealed records of 23 bird, eight mammal and 24 reptile species within a 40 kilometre radius (DEC, 2011b). Due to the remote location and lack of studies there is limited information on the faunal assemblages expected in the Central Ranges region.

The deficiency in biological survey data from the area, particularly in regards to fauna, brings a level of uncertainty when assessing the level of biological diversity of the application area. However, the broad-scale vegetation types are common and widespread locally and the surrounding area is largely uncleared. Given the small area proposed to be cleared (5 hectares), it is not likely that the proposed clearing will have any significant impact on biodiversity at a regional scale.

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

Methodology

CALM (2002)
DEC (2011b)
Shepherd (2009)
Western Botanical (2011)
GIS Database:
- IBRA WA (Regions - Subregions)
- Pre-European Vegetation
- Threatened and Priority Flora
- Threatened Ecological Sites Buffered

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments

Proposal may be at variance to this Principle

No targeted fauna surveys were undertaken within the application area and the fauna habitats present within the application area have not been recorded. The vegetation types of the application area have been mapped (Western Botanical, 2011) and broad fauna habitat types may be inferred from these. The application area is dominated by broad flat sand sheets supporting *Triodia basedowii* and *T. schinzii* with low sand dunes supporting *Acacia ligulata - Grevillea stenobotrya*. Areas of hard pan plain with Mulga lie between the sand dunes and sand sheets. Areas of *Eucalyptus oxymitra* mallees over Spinfex area also noted, on foot slopes of dunes and on deeper sand sheets (Western Botanical, 2011). A diversity of microhabitats commonly occur within the range of habitat types described, including logs, debris, leaf litter, tree hollows, and soils suitable for digging and burrowing animals.

At a broad scale Beard vegetation association 18 is widespread both regionally and state wide (Shepherd, 2009; GIS Database) and the described vegetation types have also been identified in areas adjacent to the application area (Coffey, 2009). It could therefore be expected that the main fauna habitats are also common and occur outside of the application area. There are large areas of intact vegetation outside the application area (GIS Database) and the Central Ranges bioregion is largely uncleared, with approximately 99.97% of pre-European vegetation remaining (Shepherd, 2009; GIS Database).

There are 18 fauna species listed as Threatened Species under the *Environment Protection and Biodiversity Conservation Act 1999* or specially protected under Western Australian legislation that are known from the Mann-Musgrave Block subregion (CALM, 2002; DEC, 2010; DEC, 2011b). No systematic fauna surveys have been conducted in the Mann-Musgrave Block subregion and fauna survey data is sparse, confined to vertebrates, and mostly site specific (CALM, 2002). Therefore, data from a large search area is needed to predict the potential conservation significant fauna species occurring within the application area.

Many of the 18 conservation significant species are considered highly mobile and/or have a wide distribution so the clearing is unlikely to significantly impact on the species. Several of the species have specific habitat requirements that are not found within the application area, e.g. wetlands. Other species are known mostly from historical records (DEC, 2011b) and based on their current distribution the species are not expected to be in the application area or its surrounds. However, Mulgaras (*Dasycercus cristicauda* and *D. blythi*), Greater Bilby (*Macrotis lagotis*) and Great Desert Skink (*Liopholis kintorei*) are ground-dwelling Threatened fauna with limited dispersal abilities and are more likely to be impacted on by any development. The habitat needed for Mulgaras is spinifex (*Triodia*) hummock grassland (Burbidge, 2004) and this vegetation type occurs within the application area (Western Botanical, 2011). Bilbies live in a variety of habitats from open woodland to desert loamy sands (Burbidge, 2004). The entrance to their burrows is often against a spinifex hummock, termite mound or shrub (Burbidge, 2004) so the application area provides potential habitat for the Bilby. The Great Desert Skink occupies a range of vegetation types, with a major habitat being hummock grasslands with occasional trees such as *Acacia* and *Eucalyptus* species, and sandy plains. This vegetation type occurs within the application area (Western Botanical, 2011). The Great Desert Skink is a communal species that digs complex burrow systems which can have five to ten entrances and be continuously occupied for up to seven years (Pavey, 2006; McAplin et al., 2011). All four species construct burrows that the animals live in during the day (Pavey, Cole and Woinarski, 2006; DEC, 2011a). Therefore any core habitat, such as burrows, could be considered significant and should be avoided.

The area proposed to be cleared is small (5 hectares), spread over a large application area, and there are large amounts of uncleared vegetation in the Central Ranges. However, there is also very little biological knowledge of the region. Only limited fauna information is available for the Central Ranges and Musgraves area due to a lack of fauna surveys being completed in the remote region (CALM, 2002). The conservation values of the application area in regards to fauna, in particular conservation significant species, are uncertain and cannot be fully understood until on-ground fauna surveys are conducted. Potential impacts to conservation significant fauna as a result of the proposed clearing may be minimised by the implementation of a fauna management condition.

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

Methodology

Burbidge (2004)
CALM (2002)
Coffey (2009)
DEC (2010)
DEC (2011a)
DEC (2011b)
McAplin et al. (2011)
Pavey (2006)
Pavey, Cole and Woinarski (2006)
Shepherd (2009)
Western Botanical (2011)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Pre-European Vegetation

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Comments

Proposal is not likely to be at variance to this Principle

According to available databases there are no known records of Declared Rare Flora (DRF) within the application area (GIS Database). The nearest record of DRF is located approximately 630 kilometres south-west of the application area (GIS Database).

A flora and vegetation survey was conducted over the application area by Western Botanical botanists in June and August 2011 and no DRF were recorded (Western Botanical, 2011).

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

Methodology

Western Botanical (2011)
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

A search of available databases revealed that there are no known Threatened Ecological Communities (TECs) within the application area (GIS Database). The nearest recorded TEC is located approximately 775 kilometres south-west of the application area (GIS Database). The proposed clearing is not likely to impact on any known TEC.

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

Methodology

GIS Database:
- Threatened Ecological Sites Buffered

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

Comments

Proposal is not at variance to this Principle

The clearing application area falls within the Central Ranges Interim Biogeographic Regionalisation for Australia (IBRA) bioregion in which approximately 99.97% of the pre-European vegetation remains (see table) (Shepherd, 2009; GIS Database). This gives it a conservation status of 'Least Concern' according to the Bioregional Conservation Status of Ecological Vegetation Classes (Department of Natural Resources and Environment, 2002).

The vegetation of the clearing application area has been mapped as Beard vegetation association 18 'Low woodland; mulga (*Acacia aneura*)' (GIS Database). According to Shepherd (2009) over 99.9% of this vegetation association remains at a state and bioregional level (see table). This vegetation association would be given a conservation status of 'Least Concern' at both a state and bioregional level (Department of Natural Resources and Environment, 2002).

The vegetation under application is not a remnant of vegetation in an area that has been extensively cleared.

	Pre-European Area (ha)*	Current Extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Central Ranges	4,701,520	4,700,253	~99.97	Least Concern	-
Beard Veg Assoc. – State					
18	19,892,305	19,890,275	~99.99	Least Concern	2.13
Beard Veg Assoc. – Bioregion					
18	1,075,927	1,075,180	~99.93	Least Concern	-

* Shepherd (2009)
** Department of Natural Resources and Environment (2002)

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

Methodology Department of Natural Resources and Environment (2002)
Shepherd (2009)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Pre-European Vegetation

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

Comments **Proposal may be at variance to this Principle**
There are no watercourses or wetlands within the application area (GIS Database). The vegetation survey by Western Botanical botanists defined twelve vegetation communities with two landscape unit groups. One of these landscape unit groups was 'hardpan and drainage' and this had the vegetation communities 'groved Mulga shrubland' and 'hardpan Mulga shrubland' associated with it (Western Botanical, 2011). These areas are mostly described as hard pan plains (Western Botanical, 2011) and any drainage areas are poorly defined and unlikely to regularly flow in the arid climate of the region.

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

Methodology Western Botanical (2011)
GIS Database:
- Geodata, Lakes
- Hydrography, Linear

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

Comments **Proposal is not likely to be at variance to this Principle**
BHP Billiton Minerals Pty Ltd has applied to clear up to 5 hectares within an application area totalling approximately 1,461 hectares. Disturbance will be for access tracks and drill pads and the topsoil will be stockpiled then used for rehabilitation (BHP Billiton Minerals Pty Ltd, 2011). The proposed clearing activities are not likely to result in large areas of disturbed or open land. Given the small size of the proposed activities, the clearing is not likely to result in appreciable land degradation.

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

Methodology BHP Billiton Minerals Pty Ltd (2011)

(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 proposed clearing is not located within a Department of Environment and Conservation (DEC) managed conservation reserve (GIS Database). The nearest conservation reserve is Gibson Desert Nature Reserve, which is located approximately 150 kilometres north-west of the application area (GIS Database). A large proportion of the vegetation in the Central Ranges bioregion remains uncleared, approximately 99.97% (Shepherd, 2009), so it is unlikely that the application area provides an important buffer or ecological linkage to the nature reserve.

The application area occurs within the Register of National Estate site Ranges of the Western Desert (GIS Database). The Ranges of the Western Desert cover approximately 8,016,568 hectares and are a system of ranges with many gorges and valleys. The site is considered significant due to its colourful and spectacular scenery, Aboriginal paintings in Walter James Range, and endemic and rare flora species (Australian Heritage Database, 2011). Despite the area being on the Register of National Estate for natural values, it is considered that the proposed clearing is low impact and of a small scale and will not significantly impact on the environmental values of the area.

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

Methodology Australian Heritage Database (2011)
Shepherd (2009)
GIS Database:
- DEC Tenure
- Register of National Estate

(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 the available databases the application area is not located within a Public Drinking Water Source

Area (PDWSA) (GIS Database). The small area of the proposed clearing is unlikely to cause deterioration in the quality of underground water.

There are no wetlands or watercourses within the application area (GIS Database). The proposed clearing is unlikely to cause deterioration in the quality of surface water in the local area.

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

Methodology GIS Database:
- 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

The application area is located within the Warburton Basin catchment area (GIS Database). Given the size of the area to be cleared (5 hectares) in relation to the size of the catchment area (17,195,990 hectares) (GIS Database), the proposed clearing is not likely to increase the potential of flooding on a local or catchment scale.

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

Methodology GIS Database:
- Hydrographic Catchments - Catchments

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

Comments

There is one Native Title Claim (WC04/3) over the area under application (GIS Database). This claim has been determined by the Federal Court. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Aboriginal Sites of Significance within the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment and Conservation and the Department of Water, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

The clearing permit application was advertised on 3 October 2011 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received.

Methodology GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims - Determined by the Federal Court

4. References

Australian Heritage Database (2011) Department of Sustainability, Environment, Water, Population and Communities. http://www.environment.gov.au/heritage/index.html (Accessed 5 October 2011).

BHP Billiton Minerals Pty Ltd (2011) West Musgraves Clearing Permit Application. September 2011.

Burbidge, A. (2004) Threatened Animals of Western Australia, Department of Conservation and Land Management, Perth, Western Australia.

CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Central Ranges 1 (CR1 - Mann-Musgrave Block Subregion). Department of Conservation and Land Management, Western Australia.

Coffey (2009) Flora and Vegetation Assessment West Musgraves Project Area Great Victorian and Gibson Deserts. Report Prepared by Coffey Environments Pty Ltd for BHP Billiton Minerals Exploration, September 2009.

DEC (2010) Current List of Threatened Fauna Rankings, 17 August 2010. Department of Environment and Conservation.

DEC (2011a) NatureBase: Fauna Species Profile - Bilby. Department of Environment and Conservation, Western Australia. http://www.dec.wa.gov.au/content/view/3432/1999/1/2/ (Accessed 9 May 2011).

DEC (2011b) NatureMap: Mapping Western Australia's Biodiversity. Department of Environment and Conservation. http://naturemap.dec.wa.gov.au/default.aspx (Accessed 4 April 2011).

Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
McAplin, S., Duckett, P. and Stow, A. (2011) Lizards Cooperatively Tunnel to Construct a Long-Term Home for Family Members. Plos ONE 6(5): e19041. doi:10.1371/journal.pne.0019041.
Pavey, C. (2006) Great Desert Skink (Tjakura) *Egernia kintorei*. Northern Territory Government, Department of Natural Resources, Environment and the Arts.
Pavey, C., Cole, J. and Woinarksi, J. (2006) Crest-tailed Mulgara (Ampurta) *Dasycercus cristicauda*. Northern Territory Government, Department of Natural Resources, Environment and the Arts.
Shepherd, D.P. (2009) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.
Western Botanical (2011) Flora and Vegetation Assessment, Gerar Study Area, Portion of E69/2201. Report Prepared by Western Botanical for BHP Billiton Ltd Minerals Exploration Division, September 2011.

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:
(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.