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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3711/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Lake Hillman Mining Pty Ltd**

1.3. Property details

Property: Mining Lease 70/734
Miscellaneous Licence 70/110
Local Government Area: Shire of Korda
Colloquial name: Lake Cowcowing Gypsum Mine

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 7 April 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 and are useful to look at vegetation in a regional context. The following Beard vegetation associations have been mapped within the application area (GIS Database): 125: Bare areas; salt lakes; 1061: Mosaic: Medium sparse woodland; salmon gum & yorrell / Succulent steppe; saltbush & samphire. Landform Research (2009) conducted a vegetation survey over the application area and surrounding vegetationNovember 2007, June 2008 and most recently in April 2009. The following vegetation types have been identified within the application area: ***Casuarina obesa* Low Open Woodland** over an understorey of Chenopod open low shrubland; **Saltbush Low Shrubland**; and **Samphire Low Shrubland**.	Lake Hillman Mining Lty Ltd has applied to clear up to 9.5 hectares of native vegetation (GIS Database; Landform Research, 2009). The application area is located approximately 15 kilometres south-west of Koorda (GIS Database). The proposed clearing is for the purpose of quarrying for gypsum (Landform Research, 2009). Clearing will be done using an excavator and loader (Landform Research, 2009).	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994). to Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).	Vegetation descriptions were derived from Landform Research (2009).

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 AW1 - Ancient Drainage subregion of the Avon Wheatbelt Bioregion of the Interim Biogeographic Regionalisation of Australia (IBRA) (GIS Database). This bioregion is characterised

by proteaceous scrubheaths, rich in endemics, on residual lateritic uplands and derived sandplains; mixed eucalypt, *Allocasuarina huegeliana* and Jam-York Gum woodlands on Quaternary alluvials and eluvials (Beecham, 2001). The vegetation described within the application area is typical of the bioregion (Landform Research, 2009).

A flora and vegetation survey of the application area and surrounding vegetation identified 26 species from 11 families (Landform Research, 2009). This is not considered to be floristically diverse. Plant density is considered low, with only *Casuarina obesa* contributing significantly to ground cover (Landform Research, 2009). The remaining species only contribute 5% to 11% of the vegetation cover, illustrating how most of the gypsum ridge is bare ground (Landform Research, 2009). Three vegetation communities have been identified within the application area. These vegetation communities have been identified as being in a good to excellent condition (Landform Research, 2009).

No Declared Rare Flora (DRF) or Priority Flora have been identified within the application area (Landform Research, 2009). One species of the genus *Frankenia* was recorded within the application area. The DRF *Frankenia conferta* has been identified in the Lake Hillman area from several locations as well as the presumed extinct flora species *Frankenia parvula* (Landform Research, 2009). The *Frankenia* species recorded on site was examined extensively under microscope and found to compare to *Frankenia pauciflora* that is found from the Goldfields to the coast. The species was subsequently confirmed as *Frankenia pauciflora* (Landform Research, 2009).

The proposed vegetation clearing has the potential to introduce weed species into the local area should adequate hygiene practices not be put in place. Weeds can affect biodiversity in a number of ways, including out competing native species for resources and increasing the fire risk. The potential spread of introduced species as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

From a fauna perspective, no detailed surveys have been undertaken to measure the species richness of the application area. However, based on assessment of fauna habitat it is not likely that the area applied to clear would support a higher level of fauna species diversity than any other area in the local area or region (GIS Database; Landform Research, 2009).

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

Methodology

Beecham (2001)
Landform Research (2009)
GIS Database:
- Cowcowing Lakes 25cm Orthomosaic
- Declared and Priority Flora List
- IBRA WA (Regions - Sub Regions)

(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 Department of Environment and Conservation's online fauna database comprising a 20 kilometre radius around the application area. This search identified 2 Amphibian, 7 Avian, 101 Invertebrate, 6 Mammalian, and 23 Reptilian species that may occur within the search area (DEC, 2010). Of these, the following species of conservation significance have been recorded within a 20 kilometre radius of the application area:

- Western Spiny-tailed Skink (*Egernia stokesii* subsp. *badia*) – Schedule 1; Endangered;
- Chuditch (*Dasyurus geoffroii*) – Schedule 1; Vulnerable;
- Shield-backed Trapdoor Spider (*Idiosoma nigrum*) – Schedule 1
- *Paratemia contracta* – Prioirty 1;
- Tree-stem Trapdoor Spider (*Aganippe castellum*) – Priority 4; and
- Woma (*Aspidites ramsayi*) – Schedule 4.

No detailed fauna surveys have been undertaken within the application area, although observations were recorded during the vegetation survey. Landform Research (2009) also advise that a search of available databases was conducted. Landform Research (2009) consider that the vegetation present within the application area will provide some habitat, but the quality of this habitat has been reduced by previous disturbances to vegetation in the area.

Based on their habitat preferences and ecology, the above listed species excluding *Paratemia contracta* are not likely to depend on the application area as significant habitat. *Paratemia contracta* is a brine shrimp that is found in acidic salt lakes in Southwestern Australia (Conte & Geddes, 1988). There is a record from 1941 of this species occuring in a pool in the basin of Lake Cowcowing (Coote & Geddes, 1988). A small part of the application area includes vegetation that is located on the lake bed (Landform Research, 2009). As there is not much known about this species it is difficult to determine if the proposed clearing will have an impact on this

species. However, as it is an aquatic species the proposed cleared would not be expected to significantly impact its habitat.

Whilst the application area may not provide significant habitat for fauna, some fauna speices are likely to utilise the area. Large portions of vegetation in the bioregion have been cleared for agriculture (Shepherd, 2009). It is likely that the vegetation surrounding Lake Cowcowing provides a linkage to surrounding areas of remnant vegetation (GIS Database). However, the application area resides on the shores of the lake and its removal would not be expected to result in the disruption of any linkages in the local area.

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

Methodology
Conte & Geddes (1988)
DEC (2010)
Landform Research (2009)
Shepherd (2009)
GIS Database:
- Cowcowing Lakes 25cm Orthomosaic

(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 *Frankenia conferta* (DRF) has been recorded approximately 740 metres west of the application area (GIS Database).

Landform Research (2009) conducted a vegetation survey over the application area and surrounding vegetation in April 2009, and also in November 2007, and June 2008. No DRF, Priority Flora or significant flora have been identified within the application area, although there are a substantial number of DRF and Priority Flora species that occur in nearby areas (GIS Database; Landform Research, 2009). Specimens of the genus Frankenia were identified within the application area (Landform Research, 2009). As the DRF *Frankenia conferta* has been identified within close proximity to the application area, the Frankenia identified on site was examined extensively under microscope and found to compare to the species *Frankenia pauciflora* that is found from the Goldfields to the coast (Landform Research, 2009). The species was subsequently confirmed as *Frankenia pauciflora* (Landform Research, 2009).

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

Methodology
Landform Research (2009)
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 known Threatened Ecological Communities (TEC's) within the application area (GIS Database). There are no known TEC's within a 40 kilometre radius of the application area (GIS Database). None of the vegetation types identified by Landform Research (2009) were representative of a TEC.

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

Methodology
Landform Research (2009)
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 at variance to this Principle

The application area falls within the Avon Wheatbelt (AW1 - Ancient Drainage subregion) Interim Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 15.17% of the Pre-European vegetation remains (see table) (GIS Database; Shepherd, 2009).

The vegetation of the application area has been mapped as the following Beard vegetation association (GIS Database):

125: Bare areas; salt lakes; and
1061: Mosaic: Medium sparse woodland; salmon gum & yorrell / Succulent steppe; saltbush & samphire

According to Shepherd (2009) there is approximately 93% of Beard vegetation association 125 remaining in the State and approximately 21.4% remaining in the Avon Wheatbelt Bioregion (see table below). There is approximately 29.2% of Beard Vegetation 1061 remaining in the State and Avon Wheatbelt Bioregion (see table below).

Both of these vegetation associations have a conservation status of 'endangered' at a bioregional level and vegetation association 1061 is also 'endangered' at a State level (Department of Natural Resources and Environment, 2002). This representation is also below the 30% threshold below which species loss appears to accelerate (EPA, 2000).

Beard vegetation association 125 is described as bare areas; salt lakes, and this description implies that no vegetation will be cleared from this vegetation association. Beard vegetation mapping has been done at a broad scale and most of the areas mapped as vegetation association 125 have been described as possessing low open woodlands and low shrublands (Landform Research, 2009). Therefore, the majority of the area within the application area mapped as Beard vegetation association 125 is not actually representative of the mapping. Given this, and that following clearing there would still be the same amount of bare salt lake, this vegetation assocaition is not likely to be significantly impacted by the proposed clearing.

Only a small portion of the application area has been mapped as Beard vegetation association 1061 (GIS Databsse). There is approximately 0.33 hectares that has been mapped within the application area (GIS Database). Whilst the proposed clearing will remove vegetation classed as 'endangered' and below the 30% threshold, it is only a small proportion of the 12,495 hectares remaining at a State, bioregion and subregional level (Shepherd, 2009).

Whilst Lake Cowcowing itself appears to remain largely uncleared the surrounding areas have been heavily cleared for agricultural purposes (GIS Database). Lake Cowcowing covers an area in excess of 20,000 hectares, however, not all of this area will be vegetated (GIS Database). Given the relatively small scale of the clearing, it is not anticipated that the proposed clearing will significantly impact the ability of Lake Cowcowing to act as a remnant in the local area.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Avon Wheatbelt	9,517,109.6	1,433,690.4	~15.17	Endangered	~1.75
IBRA Subregion – Ancient Drainage Subregion	6,524,190	1,168,614	~17.91	Endangered	~1.82
Local Government – Koorda	283,195	38,442	~13.57	Endangered	~2.26
Beard veg assoc. – State					
125	3,489,858	3,246,667	~93.0	Least Concern	~7.2
1061	42,747	12,495	~29.2	Endangered	~17.8
Beard veg assoc. – Bioregion					
125	167,448	35,896	~21.4	Endangered	~19.0
1061	42,747	12,495	~29.2	Endangered	~17.8
Beard veg assoc. – Subregion					
125	148,564	34,439	~23.18	Endangered	~15.27
1061	42,747	12,495	~29.23	Endangered	~17.84
Beard veg assoc. – Koorda Shire					
125	27,781	12,700	~45.72	Depleted	~13.12
1061	11,662	1,115	~9.56	Endangered	~2.81

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

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

Methodology

Department of Natural Resources and Environment (2002)
Landform Research (2009)
Shepherd (2009)
GIS Database:
- Cowcowing Lakes 25cm Orthomosaic
- Hydrography, Lakes (medium scale, 250k GA)
- 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

According to available databases, the application area is located on the ridge of a non-perennial lake (Lake Cowcowing) (GIS Database; Landform Research, 2009). The ridge the application area is located upon rises

approximately 1-2 metres above the surrounding lake bed, which is saline and only fills with water occasionally as a result of heavy rainfall events (Landform Research, 2009).

Approximately 1.8 hectares of the Chenopod Low Shrubland lies on an elevated portion of the lake bed that may be classified as associated with a watercourse (Landform Research, 2009). The remaining vegetation is not growing within the lake itselft, however, it does form part of a buffer to this wetland.

Based on the above, the proposed clearing is at variance to this Principle, as vegetation associated with a watercourse is to be removed. However, given the size of the lake (over 20,000 hectares), the removal of this vegetation is not expected to have a significant impact on the environmental values of Lake Cowcowing.

Methodology Landform Research (2009)
GIS Database:
- Hydrography, Lakes (medium scale, 250k GA)
- Hydrography, Linear

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

Comments **Proposal may be at variance to this Principle**
The vegetation under application lies within soils associated with gently undulating rolling terrain with some ridges and uneven slopes, and with variable presence of lateritic and granitic landforms (DAFF, 2008; Schoknecht, 2002). Chief soils are hard alkaline yellow mottled soils and hard alkaline red soils either of which may be dominant locally (Schoknecht, 2002). The proposed clearing of vegetation risks exposing soils which are susceptible to wind erosion. Impacts to erosion may be minimised by the implementation of a staged clearing condition.

The soils present within the application area are already saline to highly saline and this is not expected to change (Landform Research, 2009). However, further removal of vegetation from this highly cleared landscape could potentially lead to an increase in secondary salinity of nearby lands.

At a broad scale the surface soil pH of the application area ranges from 6.5 to 7.0 (CSIRO, 2009). The application area has been identified as having a high probability of acid sulphate soils occurring (CSIRO, 2009). Provided the proposed clearing does not expose the subsoil, then environmental acidity is not expected to rise. The application area is relatively flat, so there is not likely to be an increase in runoff leading to water erosion (GIS Database).

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

Methodology CSIRO (2009)
DAFF (2008)
Landform Research (2009)
Schoknecht (2002)
GIS Database:
- Topographic Contours, 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 may be at variance to this Principle**
The application area is not located within a Department of Environment and Conservation (DEC) managed conservation area (GIS Database). Several DEC managed lands are within a 10 kilometre radius of the application area, the closest being the Dukin Nature Reserve, located approximately 0.98 kilometres east of the proposed clearing (GIS Database). Due to the close proximity of the proposed clearing to the nature reserve there is the potential for the application area to be an ecological link to the DEC managed conservation area, in which case the proposed clearing may have an indirect impact on the conservation area.

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

Methodology Landform Research (2009)
GIS Database:
- DEC Tenure

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Comments **Proposal may 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 PDWSAs within a 50 kilometre radius of the proposed clearing (GIS Database).

Lake Cowcowing is a saline lake with a covering of fine gypsum clays overlain by a salt crust. In wet conditions water fills the lake from precipitation, but is saline, becoming more saline as the water evaporates (Landform Research, 2009). Groundwater salinity of the application area is mapped as being in excess of 35,000 milligrams per litre Total Dissolved Solids (GIS Database). Removal of deep rooted perennial vegetation from this highly cleared landscape could potentially result in an increase in secondary salinity in the local area as well as potentially resulting in wind and water erosion causing more sedimentation in surface water.

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

Methodology Landform Research (2009)
GIS Database:
- Groundwater Salinity, Statewide
- 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 proposed clearing is located along the ridge of Lake Cowcowing (GIS Database). The proposed clearing activities will result in the elevation of the final surface being close to that of the existing lake bed (Landform Research, 2009). Lake Cowcowing is ephemeral saline lake, that only fills after heavy rainfall events (Landform Research, 2009). The scale of the proposed clearing (9.5 hectares) in relation to the size of Lake Cowcowing (over 20,000 hectares) is unlikely to increase the potential for flooding (GIS Database).

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

Methodology Landform Research (2009)
GIS Database:
- Hydrography, Linear
- Hydrography, Lakes (medium scale, 250k GA)

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

Comments

There are no native title claims over the area under application (GIS Database). 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 located within the clearing permit 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.

The proposal was referred to the Environmental Protection Authority (EPA) by the Department of Mines and Petroleum on 26 August 2010. The EPA provided the following recommendation on 1 March 2011 - “Not Assessed – Managed under Part V of the *Environmental Protection Act 1986*”.

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 17 May 2010 by the Department of Mines and Petroleum inviting submissions from the public. One submission was received during the public comment period raising no objection to the proposed clearing.

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

4. References

Beecham, B. (2001) Avon Wheatbelt 1 (AW1 - Ancient Drainage subregion). In A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Department of Conservation and Land Management, pp 7-35.

Conte, F.P. & Geddes, M.C. (1988) Acid brine shrimp: Metabolic strategies in osmotic and ionic adaptation. Hydrobiolgia, 158: 191 - 200.

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Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

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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.

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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.