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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4278/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Process Minerals International Pty Ltd**

1.3. Property details

Property: Mining Lease 52/244
Mining Lease 52/1054
Miscellaneous Licence 52/110
Local Government Area: Shire of Meekatharra
Colloquial name: Elsa Mary Manganese Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 28 April 2011

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description Beard vegetation associations have been mapped for the whole of Western Australia and are useful to look at vegetation in a regional context. The following Beard vegetation associations have been mapped within the application area (GIS Database):

18: Low woodland; mulga (*Acacia aneura*);

29: Sparse low woodland; mulga, discontinuous in scattered groups; and

202: Shrublands; mulga & *Acacia quadrimarginea* scrub.

A Level 1 flora and vegetation survey of the application area was conducted by ecologia in February 2008, April and July 2009. The following 11 vegetation communities were mapped within the application area (ecologia, 2010):

1. *Acacia aneura* shrubland over mixed low *Ptilotus* species: *Acacia pruinocarpa* isolated low trees over *Acacia aneura* low open woodland over *Eremophila latrobei* subsp. *latrobei* sparse mid shrubland over *Ptilotus obovatus* and *P. schwartzii* var. *schwartzii* low open shrubland;

2. *Acacia aneura* tall open shrubland over mixed shrubs: *Grevillea berryana* and *Acacia pruinocarpa* isolated low trees over mixed *Acacia* mid open shrubland (*Acacia aneura*, *A. distans* and *A. tetragonophylla*) over *Senna glaucifolia*, *Eremophila jucunda* subsp. *pulcherrima* and *Sida* sp. Golden calyces glabrosus (H.N. Foote 32) low open shrubland;

3. *Acacia aneura* tall open shrubland over mixed shrubs: *Acacia aneura* tall open shrubland over mixed *Eremophila* spp. mid sparse shrubland (*Eremophila latrobei* subsp. *latrobei*, *E. spectabilis* subsp. *brevis* and *E. jucunda* subsp. *pulcherrima*) over *Ptilotus schwartzii* var. *schwartzii* and *Sida* sp. Golden calyces glabrous (H. N. Foote 32) low open shrubland;

4. *Acacia aneura* tall open shrubland over mixed shrubs: *Grevillea berryana* tall open woodland over *Acacia aneura* tall open shrubland with *Corymbia ferriticola* sparse mallee shrubland over *Eremophila pendulina* mid open shrubland over *E. jucunda* subsp. *pulcherrima*, *Ptilotus obovatus*, *P. Schwartzii* var. *schwartzii* and *Sida* sp. Golden calyces glabrous (H.N. Foote 32) low open shrubland;

5. *Acacia marramamba* shrubland over mixed shrub species: *Acacia marramamba* and *A. aneura* tall open shrubland over *Eremophila forrestii* subsp. *forrestii*, *E. latrobei* subsp. *latrobei* and *Tribulus suberosus* mid sparse shrubland over *Eremophila jucunda* subsp. *pulcherrima*, *Ptilotus obovatus*, *P. astrolasius* var. *astrolasius* and *Sida* sp. Golden calyces glabrous (H. N. Foote 32) low open shrubland;

6. Mixed *Acacia* shrubland over mixed low shrubs: *Acacia aneura* tall open shrubland with emergent *A. pruinocarpa* low trees over mixed *Acacia* species (*A. distans*, *A.* sp. Peak Hill (R. Gibson 0003), *A. marramamba*,

A. tetragonophylla and *A.* sp. Hamersley Range hilltops (S. van Leeuwen 3552) tall shrubland over mixed *Senna* species (*S. glutinosa* subsp. x *luerssenii*, *S. glaucifolia* and *S.* sp. Meekatharra (E. Bailey 1-26)), sometimes with *Eremophila phyllopoda*, mid open shrubland over *Eremophila jucunda* subsp. *pulcherrima*, *Ptilotus obovatus* and *P. schwartzii* var. *schwartzii* low sparse shrubland;

7. Halophytic shrubland: +/- *Acacia aneura* with *A. cuspidifolia* tall sparse shrubland over *Tecticornia indica* subsp. *bidens* and *Frankenia hispidula* low open samphire shrubland;

8. *Ptilotus obovatus* shrubland: *Acacia aneura* isolated tall shrubs over *Ptilotus obovatus, P. astrolasius* var. *astrolasius* and *Solanum lasiophyllum* low shrubland over *Maireana georgei* low sparse chenopod shrubland.

9. *Acacia* spp. woodland on minor and major drainage lines: *Acacia aneura, A. citrinoviridis* and *A. distans* low woodland / tall shrubland with *A. cyperophylla* var. *cyperophylla* and *Eucalyptus victrix* mid isolated trees (on major flow lines) over *Eremophila latrobei* var. *latrobei*, *E. spectabilis* subsp. *brevis* and *E. forrestii* var. *forrestii* mid open shrubland over *Hibiscus sturtii* and *H. coatesii* low sparse shrubland; and

10. *Acacia rhodophloia* shrubland: *Acacia rhodophloia* +/- *A. Cuthbertsonii* subsp. *cuthbertsonii* tall open shrubland over *Senna artemisioides* subsp. *helmsii*, *S glutinosa* subsp. x *luerssenii*, *Eremophila fraseri* and *Tribulus suberosus* mid sparse shrubland over *Indigofera monophylla* low open shrubland.

Clearing Description

Process Minerals International has applied to clear up to 205 hectares within an application area of 681 hectares (GIS Database). The application area is located approximately 90 kilometres north of Meekatharra (GIS Database).

The proposed clearing is for the mining of manganese. This will include mining manganese from up to seven pits, development of haul roads, a processing plant, ore stockpiles and lay down areas (Process Minerals International, 2011).

Vegetation Condition

Pristine: No obvious signs of disturbance (Keighery, 1994);

to

Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).

Comment

The vegetation condition was assessed by botanists from ecologia.

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 flora and vegetation survey of the application area recorded ten different vegetation associations (ecologia, 2010). The vegetation condition ranged from 'pristine' to 'degraded' with the majority of the application area being in 'excellent' condition (ecologia, 2010).

The application area is within the buffer area of the Robinson Range vegetation complexes (banded ironstone formation) Priority Ecological Community (GIS Database). The vegetation within the application area is not located on either the Robinson Range or banded ironstone formation, therefore, it is not likely that the proposed clearing will impact this Priority Ecological Community. Vegetation communities one, seven and ten have been identified as being of local conservation significance due to the relatively small areas mapped during the survey (ecologia, 2010).

A total of 162 flora taxa from 32 families and 61 genera were recorded during the flora surveys conducted by ecologia (2010). There has not been many surveys undertaken in the area to compare levels of diversity. DEC undertook a survey of the Robinson Range/Mount Gould in August 2006. This survey recorded 173 flora taxa from 40 families (ecologia, 2010).

No Declared Rare Flora species were recorded within the application area. The Priority 3 Flora species *Eremophila lanata* was recorded from eight locations within the application area (ecologia, 2010). The Herbarium has records of this species at two locations, one within the Gascoyne and the other in the Gibson Desert bioregion (Western Australian Herbarium, 2011). This species has been recorded during previous surveys undertaken by ecologia in the Robinson Range area (ecologia, 2010). Process Minerals International has proposed to implement a 50 metre radius 'no disturbance' buffer around known locations of *Eremophila lanata* (Process Minerals International, 2011). The species *Indigofera fractilflexa* subsp. Mount Augustus has been identified as being a species of interest (ecologia, 2010). It is found from sites in the northern Goldfields and southern Pilbara (Western Australian Herbarium, 2011). This species was recorded from one location within the application area and will also has a 50 metre buffer placed around it (Process Minerals International, 2011). Potential impacts to Priority Flora as a result of the proposed clearing may be minimised by the implementation of a flora management condition.

A Level 1 fauna survey over the application area identified 29 mammals, 123 bird, 59 reptile and three amphibian species that could potentially be found within the application area (ecologia, 2009). Of these there was five mammal, 24 bird and two reptile species identified during the reconnaissance survey (ecologia, 2009). The fauna habitats present are common and widespread throughout the bioregion, and would not be expected to possess a higher level of faunal diversity than surrounding areas.

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

Methodology ecologia (2009)
ecologia (2010)
Process Minerals International (2011)
Western Australian Herbarium (2011)
GIS Database:
- 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 is not likely to be at variance to this Principle**
A Level 1 fauna survey was conducted over the application area by ecologia in January 2009. A desktop study identified 29 mammals, 123 bird, 59 reptile and three amphibian species that could potentially be found within the application area (ecologia, 2009). There was five mammal, 24 bird and two reptile species identified during the reconnaissance survey (ecologia, 2009). The following fauna habitats have been identified within the application area (ecologia, 2009):

- Open mulga woodland on stony ground;
- Occasional rocky outcrops; and
- Pockets of denser mulga.

These habitat types are typical of habitats that are common and widespread throughout the bioregion (Process Minerals International, 2011). Whilst no species of conservation significance were recorded during the survey, ecologia (2009) identified the following species as having a high likelihood of occurring within the application area:

- Long-tailed Dunnart (*Sminthopsis longicaudata*) (Priority 3);
- Australian Bustard (*Ardeotis australis*) (Priority 4);
- Bush Stone-curlew (*Burhinus grallarius*) (Priority 4); and
- Rainbow Bee-eater (*Merops ornatus*) (migratory and marine species under the *EPBC Act 1999*).

Based on the ecology of these species and the widespread distribution of the habitats present, the proposed clearing is not expected to have a significant impact on these conservation significant species. Whilst the clearing will result in the fragmentation of some habitat, it is not likely to have significant impacts to fauna in the local area.

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

Methodology ecologia (2009)
Process Minerals International (2011)

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

Comments **Proposal is not likely to be at variance to this Principle**
According to available databases, there are no records of Declared Rare Flora (DRF) within the application area (GIS Database). A Level 1 flora survey was conducted over the application area by ecologia in February 2008, April and July 2009. No DRF was recorded during this survey (ecologia, 2010).

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

Methodology ecologia (2010)
GIS Database:
- Declared Rare and Prioirty 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**
According to available databases, there are no records of Threatened Ecological Communities (TECs) within the application area (GIS Database). A Level 1 vegetation survey was conducted over the application area by ecologia in February 2008, April and July 2009. None of the vegetation communities recorded were identified as a TEC (ecologia, 2010).

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

Methodology ecologia (2010)
GIS Database:
- Threatened Ecological Sites Buffered

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

Comments

Proposal is not at variance to this Principle

The application area falls within the Gascoyne Interim Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 100% 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 associations (GIS Database):

- 18: Low woodland; mulga (*Acacia aneura*);
- 29: Sparse low woodland; mulga, discontinuous in scattered groups; and
- 202: Shrublands; mulga & *Acacia quadrimarginea* scrub.

According to Shepherd (2009) approximately 100 percent of these Beard vegetation associations remain at both a state and bioregional level. Therefore the area proposed to be cleared does not represent 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 – Gascoyne	18,075,218	18,075,218	~100	Least Concern	1.93
Beard veg assoc. – State					
18	19,892,305	19,890,195	~100	Least Concern	1.6
29	7,903,991	7,903,991	~100	Least Concern	0.3
202	448,529	448,529	~100	Least Concern	0.4
Beard veg assoc. – Bioregion					
18	3,273,579	3,273,579	~100	Least Concern	2.5
29	3,802,459	3,802,459	~100	Least Concern	0
202	57,568	57,568	~100	Least Concern	No data available

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

Options to select from: Bioregional Conservation Status of Ecological Vegetation Classes (Department of Natural Resources and Environment 2002)

Presumed extinct	Probably no longer present in the bioregion
Endangered	<10% of pre-European extent remains
Vulnerable	10-30% of pre-European extent exists
Depleted	>30% and up to 50% of pre-European extent exists
Least concern	>50% pre-European extent exists and subject to little or no degradation over a majority of this area

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 is at variance to this Principle

There are several minor non-perennial watercourses within the application area (GIS Database). Vegetation community nine has been identified as occurring on minor and major drainage lines (ecologia, 2010). Given there is vegetation associated with a watercourse, the proposed clearing is at variance to this Principle.

The vegetation communities associated with these watercourses are common and widespread throughout the bioregion. The majority of the disturbance to these drainage lines will be due to clearing for access tracks and roads (Process Minerals International, 2011). Whilst the proposed clearing may lead to a temporary increase

in sediment loads, it is not expected to significantly impact these watercourses or associated vegetation.

Methodology ecologia (2010)
Process Minerals International (2011)
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 may be at variance to this Principle

The application area has been mapped as occurring on the Beasley, Horseshoe, Peak, Yandil and Yarrameedie land systems (GIS Database). These land systems have the following erosion hazards (Curry et al., 1994):

- Beasley: mostly resistant to erosion due to stony mantles. Minor erosion is possible on drainage tracts;
- Horseshoe: generally not susceptible to erosion;
- Peak: little or no accelerated erosion owing to dense stony mantles and skeletal soils;
- Yandil: unmantled areas of major units (particularly drainage tracts) are moderately susceptible to erosion;
- Yarrameedie: Alluvial fans and creeklines are mildly susceptible to erosion.

There are areas of drainage tracts and alluvial fans within the application area that have been identified as having a minor to moderate susceptibility to erosion. Impacts of erosion may be minimised by the implementation of a staged clearing condition.

At a broad scale the surface soil pH of the application area is 5.5 to 6.5 with a small part of the access road passing through an area mapped as 4.8 to 5.5 (CSIRO, 2009). The majority of the application area has no known occurrence of acid sulphate soils and a small part has a low probability of acid sulphate soils (CSIRO, 2009). The average annual evaporation rate is over 12 times the annual average rainfall so there is a low probability of the proposed clearing causing increased groundwater recharge resulting in rising saline water tables (GIS Database).

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

Methodology CSIRO (2009)
Curry et al. (1994)
GIS Database:
- Evaporation Isopleths
- Rainfall, Mean Annual
- Rangeland, Land System Mapping

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Comments

Proposal is not likely to be at variance to this Principle

The application area does not lie within any conservation areas or DEC managed tenure (GIS Database). The nearest conservation area is the ex Doolgunna pastoral lease located approximately 14 kilometres east of the application area (GIS Database). Based on the distance between the application area and the nature reserve, the proposed clearing is not likely to impact the environmental values of any conservation areas.

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

Methodology GIS Database:
- DEC Tenure

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

Comments

Proposal is not likely to be at variance to this Principle

The application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database).

There are numerous minor non-perennial watercourses that are within the application area (GIS Database). The majority of the surface water within the application area is likely to occur as sheet flow following heavy rains. With an annual evaporation rate over 12 times the average annual rainfall any surface water is likely to evaporate quickly (GIS Database). Whilst the proposed clearing may lead to a temporary increase in sediment loads, is not likely to have an impact on surface water quality in the local area.

The groundwater within the application area is between 500 - 1,000 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database). This is considered to be marginal water. The proposed clearing is not likely to cause salinity levels within the application area to alter.

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

Methodology GIS Database:
- Evaporation Isopleths
- Groundwater Salinity, Satewide
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)
- Rainfall, Mean Annual

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Comments

Proposal is not likely to be at variance to this Principle

With an average annual rainfall of 300 millimetres and an average annual evaporation rate of 3,800 millimetres there is likely to be little surface flow during normal seasonal rains (GIS Database). Whilst large rainfall events may result in the flooding of the area, the proposed clearing is not likely to lead to an increase in incidence or intensity of flooding.

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

Methodology GIS Database:
- Evaporation Isopleths
- Rainfall, Mean Annual

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

Comments

There is one native title claim over the area under application (GIS Database). This claim (WC99/13) was determined by the Federal Court of Australia on 5 July 2011 (GIS Database). 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*.

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

It is the proponent's responsibility to liaise with the Department of Environment 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 28 March 2011 by the Department of Mines and Petroleum inviting submissions from the public. There were no submissions received.

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

4. References

Commonwealth Scientific and Industrial Research Organisation (2009) Australian Soil Resource Information System. Available online at: http://www.asris.csiro.au/index_ie.html Accessed on 11 April 2011.

Curry, P.J, Payne, A.L, Leighton, K.A, Hennig, P and Blood, D.A. (1994) An Inventory and Condition Survey of the Murchison River Catchment and Surrounds, Western Australia. Technical Bulletin No. 84, Department of Agriculture, South Perth.

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.

ecologia (2009) Elsa Mary Manganese Deposits Level 1 Fauna Survey. Unpublished report for Sinosteel Midwest Corporation Ltd, dated 4 March 2009.

ecologia (2010) Elsa Mary Manganese Areas Tenements E52/2084-1, M52/244 and L52/110: Vegetation and Flora Assessment Version 2. Unpublished report for Sinosteel Midwest Corporation Ltd, dated January 2010.

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

Process Minerals International (2011) Elsa Mary Manganese Project: Supporting Information for a Native Vegetation Clearing Permit Application. Unpublished report dated January 2011.

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 Australian Herbarium (2011) Florabase - The Western Australian Flora. Department of Environment and Conservation. Available online at http://florabase.dec.wa.gov.au/ Accessed on 11 April 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.