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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4550/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Robe River Pty Ltd**

1.3. Property details

Property: *Iron Ore (Robe River) Agreement Act 1964*, Mineral Lease 248SA (AML 70/248)
Local Government Area: Shire of Ashburton
Colloquial name: Angelo River Exploration Drilling Program

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
17		Mechanical Removal	Mineral exploration and access tracks

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 20 October 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. Two Beard vegetation associations have been mapped within the application area:

Beard vegetation association 18: Low woodland; mulga (*Acacia aneura*);
Beard vegetation association 29: Sparse low woodland; mulga, discontinuous in scattered groups (Shepherd, 2009; GIS Database).

Rio Tinto Pty Ltd (2011) conducted a flora survey of the application area during 19 to 20 April 2011, and described 11 vegetation communities of the application area:

Slight Slopes to Plains/Flats

1. **SS1**: *Acacia* various *aneura* low open forest over *Triodia epactia* hummock grassland;
2. **SS2:** *Corymbia hamersleyana, Eucalyptus gamophylla, E. leucophloia* low open woodland over *Acacia* various *aneura* high open shrubland over *A. pachyacra, A. maitlandii, A. bivenosa* open shrubland over *Triodia pungens* hummock grassland;
3. **SS3:** *Corymbia deserticola, Eucalyptus gamophylla* low open forest over *Acacia aneura* high open shrubland over *Sida cardiophylla, Keraudrenia velutina, Eremophila fraseri, Ptilotus rotundifolius* shrubland over *Triodia pungens* hummock grassland; and
4. **SS4:** *Eucalyptus leucophloia, Corymbia hamersleyana* low open woodland over *Acacia aneura, A. steedmanii* high open shrubland over *Ptilotus rotundifolius, Sida cardiophylla* low open shrubland over *Triodia pungens, T. basedowii* hummock grassland over *Themeda triandra,* open tussock grassland.

Mulga Flats

1. **M1:** *Acacia aneura* low open forest over *Rhagodia* sp. Hamersley scattered shrubs over *Paspalidium constrictum* very open tussock grassland over *Bidens bipinnata* very open herbs;
2. **M2:** *Acacia aneura* low open forest over *Eremophila forrestii* open shrubland over *Triodia pungens* very open hummock grassland over *Chrysopogon fallax* very open tussock grassland over *Enneapogon polyphyllus*, *Aristida contorta* open bunch grassland;
3. **M3:** *Acacia aneura* low woodland over *Senna glaucifolia, Rhagodia* sp. Hamersley open shrubland over *Eremophila lancelata* low open shrubland over *Triodia pungens* very open hummock grassland over *Aristida contorta, A. holathera* open bunch grassland;
4. **M4:** *Acacia aneura, Corymbia deserticola* low open woodland over *Rulingia luteiflora* open shrubland over *Isotropis forrestii, Senna glaucifolia* low open shrubland over *Themeda triandra, Chrysopogon fallax* tussock grassland over *Enneapogon polyphyllus* open bunch grassland;
5. **M5:** *Acacia aneura* low open forest over *Triodia pungens* open hummock grassland; and
6. **M6:** *Acacia aneura* low woodland over *Ptilotus obovatus, P. Schwartzii, Eremophila lanceolata* low open shrubland over *Aristida contorta* very open bunch grassland.

Drainage Area

1. **D1:** *Corymbia hamersleyana* low woodland over *Acacia monticola, Eremophila longifolia* open scrub over *Triodia epactia* scattered hummock grass over *Themeda triandra, Cymbopogon ambiguus* tussock grassland.

Clearing Description

Robe River Pty Ltd is proposing to clear up to 17 hectares of native vegetation within a 98.6 hectare application area for the Anglo River Exploration Drilling Program (Rio Tinto Pty Ltd, 2011). The clearing of vegetation is required for evaluation drilling and access tracks.

The vegetation will be cleared using the raised blade technique where practicable or scrub rake in level terrain. Where already cleared tracks require maintenance the track may be graded using blade down machinery. The vegetation and topsoil will be stockpiled separately for use in rehabilitation.

Vegetation Condition

Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).

Comment

The application area is located in the Hamersley subregion of Western Australia and is situated approximately 94 kilometres west of the Newman town site (GIS Database).

The vegetation condition was derived from a vegetation survey conducted by Rio Tinto Pty Ltd (2011). The vegetation conditions were described using a scale based on Trudgen (1988) and has been converted to the corresponding conditions from the Keighery (1994) scale.

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 Hamersley (PIL3) subregion of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is characterised by mountainous area of Proterozoic ranges and plateaux with Mulga (*Acacia aneura*) low woodland over bunch grasses on fine textured soils, and Snappy Gum low trees over *Triodia brizoides* hummock grasslands on the skeletal sandy soils of the ranges (CALM, 2002). The vegetation within the application area consists of Beard vegetation associations 18 and 29, which is common and widespread throughout the Pilbara bioregion with approximately 100% of the pre-European vegetation extent remaining (Shepherd, 2009; GIS Database).

A vegetation survey of the application area by Rio Tinto Pty Ltd (2011) during 19 to 20 April 2011 identified 171 species of flora taxa belonging to 88 Genera and 36 Families. Rio Tinto Pty Ltd (2011) identified 11 vegetation communities within the application area. The condition of the vegetation types were classified as 'very good' (Keighery, 1994; GIS Database).

A search of the Department of Environment and Conservation Declared Rare and Priority Flora databases revealed four Priority Flora species which may potentially occur within a 20 kilometre radius of the application area (DEC, 2011). No Declared Rare Flora (DRF) species were identified (DEC, 2011). Rio Tinto Pty Ltd (2011) identified no DRF and two Priority species within the application area. The Priority Flora species *Rhagodia* sp. Hamersley (P3) and *Triodia* sp. Mt Ella (P3) were surveyed within the application area, however *Triodia* sp. Mt Ella is now considered to be a taxonomic synonym of *Triodia bitextura* which is not a priority species. There were 19 populations of the *Rhagodia* sp. Hamersley species recorded within the application area. This species is not uncommon in *Acacia xiphophylla* and *Acacia aneura* vegetation in the Hamersley subregion and its priority status is likely to be a result of poor historic vouchering (Rio Tinto Pty Ltd, 2011). The clearing of 17 hectares of native vegetation is not likely to significantly influence the conservation status of this flora species.

No Threatened Ecological Communities or Priority Ecological Communities were recorded or identified within the application area (GIS Database).

Four species of weed were identified during the survey: Awnless Barnyard Grass (*Echinochloa colona*), Purslane (*Portulaca oleracea*), Bipinnate Beggartick (*Bidens bipinnata*) and Indian Weed (*Sigesbeckia orientalis*) (Rio Tinto Pty Ltd, 2011). None of these species are listed by the Western Australian Department of Agriculture and Food as Declared Plants. Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area. Potential impacts to the biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

The fauna habitats within the application area are considered to be common and widespread within the subregion and faunal assemblages are unlikely to be different to those found in similar habitat located elsewhere in the region (Rio Tinto Pty Ltd, 2011). The habitat types are not of high ecological significance and the clearing of 17 hectares of native vegetation is unlikely to have a significant impact in a regional context.

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

Methodology

CALM (2002)
DEC (2011)
Keighery (1994)
Rio Tinto Pty Ltd (2011)
Shepherd (2009)
GIS Database:
- IBRA WA (regions - subregions)
- Pre-European Vegetation

- 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

No targeted fauna surveys have been conducted over the application area. A vegetation survey conducted by Rio Tinto Pty Ltd (2011) identified three broad fauna habitat types within the application area;

1. Broad colluvial plains dominated by *Acacia aneura*;
2. Lower stony footslopes at the interface between *Acacia* dominated and eucalypt dominated communities; and
3. Minor drainage lines.

Rio Tinto Pty Ltd (2011) identified the vegetation condition to be 'very good' (Keighery, 1994). The application area does not contain habitats or faunal assemblages that are ecologically significant and it is unlikely that any species of conservation significance will be significantly impacted by the clearing of native vegetation in the application area. There is approximately 100% of the pre-European vegetation remaining within the Pilbara bioregion (Shepherd, 2009; GIS Database). Given the extent of the native vegetation remaining in the local area and bioregion, the vegetation to be cleared does not represent a significant ecological link.

There are two species of conservation significance listed as either threatened species under *the Environment Protection and Biodiversity Conservation Act (EPBC) 1999* or protected under Western Australian legislation (*Wildlife Conservation Act 1950*), that may potentially occur within a 20 kilometre radius of the application area (DEC, 2011). These species; the Peregrine Falcon (*Falco peregrinus*), and Australian Bustard (*Ardeotis australis*) are highly mobile and may use the application area for foraging as part of a larger territory area or as a seasonal visitor (Rio Tinto Pty Ltd, 2011). The habitat present within the application area is not considered significant habitat for these species (Rio Tinto Pty Ltd, 2011).The proposed clearing of 17 hectares of native vegetation is unlikely to have a significant impact on the conservation status of potentially occurring threatened fauna, given that there is little or no core habitat represented within the application area (Rio Tinto Pty Ltd, 2011; GIS Database).

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

Methodology

DEC (2011)
Rio Tinto Pty Ltd, 2011
Shepherd (2009)
GIS Database:
- IBRA WA (regions - subregions)
- Pre-European Vegetation
- Governor 50cm Orthomosaic - Landgate 2004

(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 search of the Department of Environment and Conservation Declared Rare and Priority Flora databases identified no DRF species as occurring within a 20 kilometre radius of the application area (DEC, 2011).

Rio Tinto Pty Ltd (2011) conducted a vegetation and flora survey of the application area during 19 to 20 April 2011. No DRF were recorded within the survey area.

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

Methodology

DEC (2011)
Rio Tinto Pty Ltd (2011)
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 the available databases shows that there are no Threatened Ecological Communities situated within 100 kilometres of the application area (GIS Database).

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 application area falls within the Pilbara IBRA bioregion (GIS Database). The vegetation within the application area is recorded as:

Beard vegetation association 18: Low woodland; mulga (*Acacia aneura*);
Beard vegetation association 29: Sparse low woodland; mulga, discontinuous in scattered groups (Shepherd, 2009; GIS Database).

According to Shepherd (2009), Beard vegetation associations 18 and 29 retain approximately 100**%** of their pre-European extent. Therefore, the area proposed to be cleared is not a significant remnant of native 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 - Pilbara	17,804,193	17,785,001	~99.89	Least Concern	6.32
Beard vegetation associations - State					
18	19,892,305	19,890,275	~99.99	Least Concern	2.13
29	7,903,991	7,903,991	~100	Least Concern	1.61
Beard vegetation associations - Bioregion					
18	676,557	676,557	~100	Least Concern	16.80
29	1,133,220	1,133,213	~100	Least Concern	1.91

* 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 - subregions)
- 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 there are a few minor ephemeral drainage lines which intersect the application area (GIS Database). These drainage lines only flow after major rainfall events (Rio Tinto Pty Ltd, 2011). Based on vegetation mapping by Rio Tinto Pty Ltd (2011), there is one riparian vegetation type associated with the drainage lines;

- **D1:** *Corymbia hamersleyana* low woodland over *Acacia monticola, Eremophila longifolia* open scrub over *Triodia epactia* scattered hummock grass over *Themeda triandra, Cymbopogon ambiguus* tussock grassland.

The condition of the riparian vegetation type is classified as 'very good' (Keighery, 1994; GIS Database) and the clearing of some riparian vegetation is unlikely to result in any significant impact to vegetation growing in association with a watercourse or wetland.

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

Methodology

Rio Tinto Pty Ltd (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

The application area is broadly mapped as the Boolgeeda land system (GIS Database).

The Boolgeeda land system is characterised by stony lower slopes and plains below hill systems supporting hard and soft Spinifex grasslands and mulga shrubands (Van Vreeswyk et al., 2004). This vegetation is generally not prone to degradation and the system is not susceptible to erosion (Van Vreeswyk et al., 2004).

Given that the land system is not prone to erosion, the proposed clearing is not likely to cause appreciable land degradation.

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

Methodology

Van Vreeswyk et al. (2004)
GIS Database:
- 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 is not located within any conservation area (GIS Database). The nearest conservation area is Karijini National Park, located approximately 26 kilometres west of the application area (GIS Database).

Given the distance of the application area from the Karijini National Park, the proposed clearing is not likely to provide a significant ecological linkage or fauna movement corridor and is not likely to impact the environmental values of the conservation area.

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

Methodology

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

According to available databases, the application area is not located within a Public Drinking Water Source Area (GIS Database).

The application area is located within the proclaimed Pilbara groundwater area under the *Rights in Water and Irrigation Act 1914* (GIS Database). Any groundwater extraction and/or taking or diversion of surface water for the purposes other than domestic and/or stock watering is subject to licence by the Department of Water.

There are several ephemeral watercourses passing through the application area which only support surface water for short periods following significant rainfall events (GIS Database; Rio Tinto Pty Ltd, 2011). The proposed clearing is not likely to cause deterioration in the quality of any surface water within or outside of the application area.

Groundwater salinities within the application area have been measured in the range of 500 -1,000 milligrams/Litre Total Dissolved Solids (GIS Database). Groundwater occurs in a discontinuous fractured rock aquifer system and the zone of permanent saturation is 50 to 60 metres below the ground surface (Rio Tinto Pty Ltd, 2011). Given the depth of groundwater and the lack of phreatophytic species in the application area, the removal of 17 hectares of native vegetation is unlikely to impact on groundwater levels or quality.

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

Methodology

Rio Tinto Pty Ltd (2011)
GIS Database:
- Geodata, Lakes
- RIWI Act, Groundwater Areas
- Hydrography, Linear
- Public Drinking Water Source Areas

(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 areas experience a semi-desert tropical climate where the annual evaporation rate (3,600 - 4,000 millimetres) substantially exceeds the annual rainfall (311.9 millimetres) (BoM, 2011; CALM, 2002). There are no permanent watercourses within the application areas; however there are drainage tracts within the proposed clearing area (Rio Tinto Pty Ltd, 2011; GIS Database). Due to the high evaporation rate and low rainfall, it is unlikely that the drainage lines would carry water under normal rainfall events. Any surface water resulting from the summer rainfall is expected to be short lived and evaporate, or be quickly utilised by the existing vegetation (Pilbara Flora, 2010).

The proposed clearing of 17 hectares of native vegetation represents only a very small proportion of the size of the Ashburton River catchment (7,877,743 hectares) within which the application area lies (GIS Database). Shepherd (2009) vegetation statistics indicate that approximately 100% of the pre-European vegetation extent remains within the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) region, therefore given that the Pilbara bioregion remains in essence uncleared, the proposed clearing is not likely to impact on the drainage characteristics of the Ashburton River catchment area.

Natural flood events do occur within the Pilbara region following cyclonic activity (Rio Tinto Pty Ltd, 2011) however the proposed clearing of 17 hectares is not expected to increase the incidence or intensity of such events.

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

Methodology

BOM (2011)
Rio Tinto Pty Ltd (2011)
Shepherd (2009)
GIS Database:
- Hydrographic Catchments - Catchments
- Hydrography, Linear

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

Comments

There is one Native Title claim over the area under application (WC10/11). 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 22 August 2011 by the Department of Mines and Petroleum inviting submissions from the public. One submission was received in relation to the proposed clearing, stating no objection to the application.

Methodology

GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims - Registered with the NNTT

4. References

BoM (2011) Climate Statistics for Australian Locations. A Search for Climate Statistics for Newman Aero, Australian Government Bureau of Meteorology, viewed 4 October 2011, <http://reg.bom.gov.au/climate/averages/tables/cw_007176.shtml>.

CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Pilbara 3 (PIL3 - Hamersley subregion) Department of Conservation and Land Management, Western Australia.

DEC (2011) NatureMap - Mapping Western Australia Biodiversity, Department of Environment and Conservation, viewed 4 October 2011, <http://naturemap.dec.wa.gov.au>.

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.

Rio Tinto Pty Ltd (2011) Flora and Vegetation survey for Proposed Exploration Drilling at ML248. Native Vegetation Clearing Permit Supporting Report, July 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.
Van Vreeswyk, A.M.E., Payne, A.L., Hennig, P., and Leighton, K.A. (2004) An Inventory and Condition Survey of the Pilbara Region, Western Australia, Department of Agriculture, Western Australia.

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.