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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 5567/1
Permit type: Purpose Permit

1.2. Proponent details

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

1.3. Property details

Property: Miscellaneous Licence 26/264
Miscellaneous Licence 26/265
Local Government Area: City of Kalgoorlie-Boulder
Colloquial name: Coogee Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
10.25		Mechanical Removal	Pipeline and Road

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 23 May 2013

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. Five Beard vegetation associations have been mapped within the application area (GIS Database):

9: Medium woodland; coral gum (*E. torquata*) & goldfields blackbutt (*E. le soufii*) (also some e10,11);

125: Bare areas; salt lakes;

468: Medium woodland; salmon gum & goldfields blackbutt;

508: Succulent steppe with open scrub; scattered mulga over saltbush; and

1241: Succulent steppe; bluebush.

A flora and vegetation survey of the application area conducted by Botanica Consulting (2012) in September 2012 identified the following eight vegetation communities within the applicaiton area:

Open low woodland of *Eucalyptus lesoufii, Eucalyptus salmonophloia* and *Eucalyptus salubris* over dwarf scrub of *Tecticornia disarticulata*;

Open low woodland of *Acacia caesaneura* and *Eremophila miniata* over low heath of *Atriplex vesicaria* and *Maireana pyramidata* on salt lake edge*;*

Open low woodland of *Eucalyptus lesouefii, Eucalyptus salmonophloia* and *Eucalyptus transcontinentalis* over open scrub of *Acacia tetragonophylla* and low heath of *Maireana sedifolia;*

Very open tree mallee of *Eucalyptus oleosa* over low woodland of *Acacia caesaneura* and dwarf scrub of *Atriplex nummularia* and *Maireana georgei;*

Open low woodland of *Eucalyptus salmonophloia* over dwarf scrub of mixed Chenopods;

Open low woodland of *Eucalyptus lesouefii* over low scrub of *Senna artemisioides* subsp. *filifolia* and dwarf scrub of *Maireana triptera*;

Low woodland of *Acacia caesaneura* over low heath of *Maireana pyramidata* and *Maireana triptera* in creekline; and

Open low woodland of *Eucalyptus salmonophloia* over low scrub of *Acacia jennerae* and dwarf scrub of *Atriplex nummularia* in creekline.

Clearing Description	Ramelius Resources Ltd has applied to clear up to 10.25 hectares of native vegetation, within an application area of approximately 86 hectares. The permit is required to install a haul road and a dewatering pipeline.
Vegetation Condition	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994); To Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).
Comment	The application area is located within the Coolgardie region of Western Australia and is situated approximately 20 kilometres north east of Kambalda, at the closest point.

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 Eastern Goldfields subregion of the Coolgardie Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). This subregion is characterised by gently undulating plains interrupted in the west with low hills and ridges of Archaean greenstones and in the east by a horst of Proterozoic basic granulite. A series of large playa lakes in the western half are the remnants of an ancient major drainage line. The vegetation is of Mallees, *Acacia* thickets and shrubheaths on sandplains. Diverse *Eucalyptus* woodlands occur around salt lakes, on ranges, and in valleys. Salt lakes support dwarf shrublands of samphire, and woodlands and *Dodonaea* shrubland occur on basic graninulites of the Fraser Range. The area is rich in endemic Acacias (CALM, 2002).

Botanica Consulting (2012) conducted a flora and vegetation survey over 294 hectares (flora survey area), including the 86 hectare application area, on 26 September 2012. The flora and vegetation survey identified 15 vegetation communities which were classified as 'good' to 'very good' condition (Keighery, 1994; Botanica Consulting, 2012). The flora survey identified a total of 113 vascular plant taxa from 64 genera and 27 families. Botanica Consulting (2012) state that the subregion has a high diversity of Acacia species, however most species are widespread through adjoining subregions (CALM, 2002).

Botanica Consulting (2012) did not identify any Threatened or Priority Flora species within the application area (Botanica Consulting, 2012).

According to available databases there are no Threatened or Priority Ecological Communities within the application area (GIS Database).

Botanica Consulting (2012) identified nine weed species, *Carrichtera annua, Carthamus lanatus, Citrullus lanatus, Centaurea melitensis, Dittrichia graveolens, Salvia verbenaca, Xanthum spinosum, Oncosiphon suffruticosum* and *Mesembryanthemum crystallinum* within the flora survey area. Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. This can in turn lead to greater rates of infestation and further loss of biodiversity if the area is subject to repeated fires. It is therefore important to ensure that weed species are not introduced to the application area as a result of the proposed activities. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

A fauna survey was conducted by Harewood (2012) over a 294 hectare area (fauna survey area), including the 86 hectare application area. Harewood (2012) identified 16 fauna habitats within the fauna survey area, all of which are considered to be common and widespread within the subregion. Faunal assemblages within the application area are considered unlikely to be different to that found in similar habitat located elsewhere in the region (Harewood, 2012). The clearing of 10.25 hectares of native vegetation within an 86 hectare application area is unlikely to have a significant impact on faunal diversity in a regional and local context.

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

Methodology

Botanica Consulting (2012)
CALM (2002)
Harewood (2013)
Keighery (1994)
GIS Database:
- IBRA WA (regions – subregions)
- Threatened and Priority Flora
- Threatened Ecological Sites Buffered

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

Comments

Proposal is not likely to be at variance to this Principle

A fauna survey was conducted by Harewood (2012) over a 294 hectare area (fauna survey area), including the 86 hectare application area. Harewood (2012) identified 16 fauna habitats within the fauna survey area based on vegetation structure and types identified by Botanica Consulting (2012).

Harewood (2012) identified the vegetation condition to be 'good' to 'very good' (Keighery, 1994). The landforms and habitat found within the application area is considered as being well represented in the Eastern Goldfields subregion (Harewood, 2012). The application area does not contain habitats or faunal assemblages that are ecologically significant. The clearing of 10.25 hectares of native vegetation is not likely to contain significant habitat for fauna.

A total of 36 native fauna species were recorded within the fauna survey area through either observation or positively identified from foraging evidence, scats, tracks, skeletons or calls (Harewood, 2012). There were two species of conservation significance recorded within the fauna survey area; the Australian Bustard (*Ardeotis australis*) (DEC - Priority 4) and the Rainbow Bee-eater (*Merops ornatus*) (EPBC Act - Migratory) (Harewood, 2012). The Australian Bustard may use the application area for foraging as part of a larger territory area and are considered highly mobile and have a wide distribution (Harewood, 2012). The Rainbow Bee-eaters are seasonally widespread and common in southern Western Australia and utilise both natural and degraded habitats. These birds could potentially use the application area and adjoining areas for foraging, roosting and possibly breeding but they would not be specifically attracted to the site. The amount of birds present at one time would be small and insignificant as they rarely congregate in colonies (Harewood, 2012). It is unlikely that the proposed clearing will cause a significant impact on the conservation status of the Australian Bustard and Rainbow Bee-eater (Harewood, 2012). The habitat present within the application areas is not considered significant habitat for other conservation significant species (Harewood, 2012).

The application area is located adjacent to a large salt lake, Lake Lefroy (GIS Database). This lake is not recognised as significant to migratory shorebirds/waders (DSEWPaC, 2012). Historical records suggest that despite potential habitat being present within the application area, it would only rarely be used by more than a few migratory shorebirds at any one time (Harewood, 2012). The application area does not represent core habitat for any of the species potentially utilising the site (Harewood, 2012).

The proposed clearing of 10.25 hectares of native vegetation within an 86 hectare application area is not likely to impact critical feeding or breeding habitat for any conservation significant fauna species as the application area does not contain significant habitat for the potential species (Harewood, 2012).

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

Methodology

Botanica Consulting (2012)
DSEWPaC (2013)
Harewood (2012)
Keighery (1994)
GIS Database:
- Geodata, Lakes

(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 Threatened Flora within the application area (GIS Database). A flora and vegetation survey of the application area conducted by Botanica Consulting (2012) did not identify any Threatened Flora species within the application area.

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

Methodology

Botanica Consulting (2012)
GIS Database:
- Threatened and Priority Flora

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments

Proposal is not likely to be at variance to this Principle

There are no Threatened Ecological Communities (TECs) within the application area (GIS Database). The nearest known TEC is located approximately 287 kilometres south east 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 is located within the Coolgardie Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS database). Approximately 97.96% of the pre-European vegetation remains within the Coolgardie bioregion (Government of Western Australia, 2013).

The vegetation within the application area has been broadly mapped as Beard vegetation associations:

9: Medium woodland; coral gum (*E. torquata*) & goldfields blackbutt (*E. le soufii*) (also some e10,11);

125: Bare areas; salt lakes;

468: Medium woodland; salmon gum & goldfields blackbutt;

508: Succulent steppe with open scrub; scattered mulga over saltbush; and

1241: Succulent steppe; bluebush.

More than 90% of these five Beard vegetation associations remain within the Pilbara Bioregion (see table below) (Government of Western Australia, 2013).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Extent in DEC Managed Lands %*
IBRA Bioregion - Coolgardie	12,912,204	12,648,491	~97.96	Least Concern	~15.84
Beard vegetation associations - State					
9	240,509	235,162	~97.78	Least Concern	~8.07
125	3,485,787	3,146,091	~90.25	Least Concern	~8.07
468	592,022	583,903	~98.63	Least Concern	~23.15
508	60,042	60,042	~100	Least Concern	~28.75
1241	10,479	10,389	~99.13	Least Concern	~0.00
Beard vegetation associations - Bioregion					
9	240,442	235,101	~97.78	Least Concern	~8.07
125	545,718	506,803	~92.87	Least Concern	~6.84
468	583,358	575,361	~98.63	Least Concern	~22.72
508	18,551	18,551	~100	Least Concern	~41.91
1241	10,479	10,389	~99.13	Least Concern	~0..00

* Government of Western Australia (2013)
** Department of Natural Resources and Environment (2002)

The vegetation within the application area is not considered to be a remnant of vegetation in an area that has been extensively cleared.

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

Methodology

Department of Natural Resources and Environment (2002)
Government of Western Australia (2013)
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 is at variance to this Principle

Based on vegetation mapping by Botanica Consulting (2012), there are three riparian vegetation types identified within the application area:

Open low woodland of *Acacia caesaneura* and *Eremophila miniata* over low heath of *Atriplex vesicaria* and *Maireana pyramidata* on salt lake edge*;*

Low woodland of *Acacia caesaneura* over low heath of *Maireana pyramidata* and *Maireana triptera* in creekline; and

Open low woodland of *Eucalyptus salmonophloia* over low scrub of *Acacia jennerae* and dwarf scrub of *Atriplex nummularia* in creekline.

The first vegetation type listed is associated with Lake Lefroy, which is low lying and is vegetation free except for the shores (Botanica Consulting, 2012; GIS Database). The shore line vegetation, comprising of approximately 3,500 hectares of riparian vegetation, is dominated by Samphires which appear to have preferred zones with some species found growing only a few centimetres above the lake margins, being periodically inundated, and others on Aeolian plateau or on dunes (CALM, 2002). The Aeolian based dunes around the lake fringe occur up to 10 metres relief; the dominant vegetation is a mixture of the shrubs *Tecticornia*, *Frankenia* and *Darwinia* sp. (CALM, 2002). The riparian zone that surrounds Lake Lefroy is considered important in providing habitat for aquatic biota and supporting ecological function (MWES Consulting, 2012). The other vegetation types are associated with non-perennial watercourses which intercept the application area. The condition of the riparian vegetation types is classified as 'good' to 'very good' (Keighery, 1994).

According to available databases (GIS Database) and vegetation mapping by Botanica Consulting (2012), there are minor, non-perennial water courses crossing the application area. Clearing of areas which contain drainage line associated native vegetation have the potential to cause localised erosion. Provided disturbance to riparian habitats is avoided or minimised where possible, and strict weed hygiene procedures are followed, the proposed works are not expected to substantially impact these vegetation units. Potential impacts to riparian vegetation may be minimised through the implementation of a watercourse management condition.

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

Methodology

Botanica Consulting (2012)
CALM (2012)
Keighery (1994)
MWES Consulting (2012)
GIS Database:
- Groundwater Salinity, Statewide
- 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

According to available databases, the following three soil units, as described by Northcote et al. (1960-68), occur within the application area:

AC1 - gently sloping to gently undulating plateau areas, or uplands, on granites, gneisses, and allied rocks, with long gentle slopes and, in places, abrupt erosional scarps, some granitic bosses, and tors; and irregularly traversed by narrow shallow valleys and flats. Chief soils are yellow earthy sands and sandy yellow earths.

BB5 – rocky ranges and hills of greenstones – basic igneous rocks. Chief soils are shallow calcareous loamy soils and similar such soils with shallow brown and grey-brown calcareous earths (Gc1.12) and (Gc1.22) below which weathered rock occurs at shallow depths.

Mx43 - gently undulating valley plains and pediments with some outcrop of basic rock. The chief soils are alkaline red earths with limestone at shallow depth with low gentle rises of soils. This soil type is susceptible to wind erosion and soil erosion, particularly in drainage tracts.

The Mx43 soil type, which covers the majority of the application area, has been identified as susceptible to erosion. Potential soil erosion as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

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

Methodology Northcote et al (1960-68)
GIS Database:
- Soils, Statewide

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

Comments

Proposal is not likely to be at variance to this Principle

The proposed clearing is not located within a conservation area (GIS Database). The nearest onshore conservation area is the Majestic Timber Reserve, located approximately 7 kilometres north of the application area (GIS Database). At this distance it is unlikely that the proposed clearing will impact on 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 (GIS Database). The application area is located within the proclaimed Goldfields 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 no permanent watercourses or water bodies within the application area (GIS Database). Several ephemeral drainage tracts transect the application area (GIS Database). These drainage tracts are dry for most of the year and only flow and hold surface water for short durations following significant rainfall events, where turbid water from intense rainfall events will flow to Lake Lefroy which is adjacent to the application area (GIS Database). The groundwater salinity within the application area ranges from saline to hypersaline (14,000 - 35,000 milligrams/Litre Total Dissolved Solids (TDS)) (Cardno, 2013; GIS Database). The proposed clearing is therefore unlikely to result in any further deterioration in surface or groundwater quality in the local area.

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

Methodology Cardno (2013)
GIS Database:
- Groundwater Salinity, Statewide
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)
- RIWI Act, Groundwater 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 area experiences an arid to semi-arid climate, with an average annual rainfall of approximately 266.2 millimetres per year (CALM, 2002; BoM, 2013). Based on an average annual evaporation rate of approximately 2,600 millimetres (GIS Database), any surface water resulting from rainfall events is likely to be relatively short lived.

Given the size of the area to be cleared (10.25 hectares) compared to the size of the Lake Lefroy catchment area (2,488,250 hectares) (GIS Database) it is considered unlikely that the proposed clearing will lead to an appreciable increase in run off, and subsequently cause or exacerbate the incidence or intensity of flooding.

Lake Lefroy is a hypersaline salt lake adjacent to the application area (GIS Database). Surface water modelling has shown that there is no inundation of riparian vegetation during a 1:20 rainfall event (Cardno, 2013). A 1:100 year flood however will raise the water level in the lake to an extent that will cause inundation to 177 locations around the lake to depths between 0.1 metres and 1 metre (Cardno, 2013). As the application area is located on elevated ground approximately five metres above the shoreline near Coogee, the risk of flooding is considered very unlikely (Cardno, 2013).

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

Methodology BoM (2013)
CALM (2002)
Cardno (2013)
GIS Database:
- Evaporation Isopleths
- Hydrography Catchments – Catchments
- Hydrography, linear

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

Comments

There is one Native Title claim (WC99/30) over the area under application (GIS Database). This claim was registered by the National Native Title Tribunal on 4 October 1999. 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 15 April 2013 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received.

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

4. References

BoM (2013) Climate Statistics for Australian Locations. A Search for Climate Statistics for Kambalda West, Australian Government Bureau of Meteorology, Viewed 13 May 2013, <http://www.bom.gov.au/climate/data/>.

Botanica Consulting (2012) Coogee Level 1 Flora and Vegetation Survey. Tenements: E26/97, E26/161, L26/264, L62/265 & M26/477. Internal Document, October 2012.

CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Coolgardie 3 (COO3 - Eastern Goldfields subregion) Department of Conservation and Land Management, Western Australia.

Cardno (2013) Clearing Permit Report - Coogee Project. Prepared for Ramelius Resources, March 2013.

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.

DSEWPaC (2013) Protected Matters Search Tool, Environment Protection and Biodiversity Conservation Act 1999, Department of Sustainability, Environment, Water, Population and Communities, viewed 14 May 2013, http://www.environment.gov.au.

Government of Western Australia (2013) 2012 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2012. WA Department of Environment and Conservation, Perth.

Harewood, G. (2012) Terrestrial Fauna Survey (Level 1) of Proposed Mine Area and Haul Road Coogee Project. Prepared for Ramelius Resources Limited, November 2012.

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

MWES Consulting (2012) Coogee Gold Deposit: Groundwater and Surface Water Assessment for Mining and Environmental Applications. Internal Report, Prepared for Ramelius Resources Limited, August 2012.

Northcote, K. H. with Beckmann G. G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.

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.