Department of Industry and Resources

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2236/1

Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Argyle Diamonds Ltd**

1.3. Property details

Property: Mining Lease 80/114
Miscellaneous Licence 80/1

Local Government Area: Shire of Wyndham-East Kimberley

Colloquial name: Bow River Sand Mining Project

1.4. Application

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

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
The area applied to clear has been broadly mapped at a scale of 1:250,000 as: Beard Vegetation Association 833: Grasslands, short bunch grass savanna sparse low tree; scattered snappy gum over arid short grass on plains (GIS Database). Mattiske Consulting Pty Ltd (2006) conducted a flora and vegetation survey of Mining Lease 80/114 and part of Miscellaneous Licence 80/1 in July 2006. This included the proposed clearing area. The following three vegetation communities were mapped from the proposed clearing area: 1. Woodland of *Eucalyptus camaldulensis var. obtusa* and *Melaleuca leucadendra* with *Terminalia cunninghamii*, *Terminalia hadleyana* over *Acacia holosericea*, *Buchanania obovata*, *Ficus coronulata* and **Cynodon dactylon* on sands in major drainage channels (riparian vegetation); 2. Open Woodland of *Bauhinia cunninghamii* with *Corymbia opaca* and *Hakea arborescens* over **Jatropha gossypifolia*, *Carissa spinarum*, *Chrysopogon fallax* and *Aristida holathera* on red clay loams; and 3. Hummock grassland of *Triodia bitextura* with *Aristida latifolia*, *Enneapogon purpurascens*, *Sporobolus australasicus* and emergent *Corymbia aspera* and *Eucalyptus brevifolia* on red clay loam. * = introduced flora species	This clearing permit application is for a Purpose Permit to clear up to 5.8 hectares of native vegetation. The clearing will allow Argyle Diamonds Ltd to undertake the Bow River Sand Mining project which involves the extraction of approximately 180,000 cubic metres of sand from the bed of Bow River over a three year period (Argyle Diamonds Ltd, 2007). The construction of an access track of approximately 950 metres in length is proposed to access the river bed mining area. Approximately four hectares will be disturbed in the sand mining area on the river bed, one hectare will be required to establish a screening area on the river bank, whilst approximately 0.8 hectares is required to construct the access track.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994) to Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	A majority of the proposed clearing area is located on Mabel Downs pastoral station (GIS Database), and consequently cattle grazing and trampling were evident in parts of the proposed clearing area. Six introduced flora species were recorded by Mattiske Consulting Pty Ltd (2006) during a flora and vegetation survey of the proposed Bow River Sand Mining project area. Sand mining is not a new venture in the Bow River area (Argyle Diamonds Ltd, 2007). Mining Lease M80/114 was originally established for the purposes of sand mining, and this occurred approximately 1.5 - 2 kilometres west of the current application area until the late 1990's (Argyle Diamonds Ltd, 2007).

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 proposed clearing area is situated 13 kilometres south of the Argyle Diamond Mine, within the Ord subregion of the Ord Victoria Plains Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). CALM (2001) describes the subregion biodiversity values in relation to landscape, ecosystem, species and genetic values. Features of significant biodiversity values at a regional scale include refugia typically associated with rainforest patches as well as centres of endemism which are centred on the Bungle Bungle range and rainforest patches.

Mattiske Consulting Pty Ltd (2006) undertook a flora and vegetation survey of the proposed clearing area in July 2006. No features of significant biodiversity value as listed by CALM (2001) for the Ord subregion were recorded in the proposed clearing area. Mattiske Consulting Pty Ltd (2006) noted that none of the vegetation communities in the area were of local or regional significance. Cattle trampling was evident on the riverbank in some areas, resulting in a low level of disturbance. Some cattle grazing was also evident (Mattiske Consulting Pty Ltd, 2006).

Six introduced flora species were recorded in the proposed clearing area (Mattiske Consulting Pty Ltd, 2006). Couch Grass (*Cynodon dactylon*) was a dominant ground layer species within, and adjacent to, riparian vegetation. The Declared Plant (*Jatropha gossypifolia*) had resulted in a noticeable level of disturbance in some plant communities. Other introduced flora species recorded in the area included Calotrope (*Calotropis procera*), Zornia (*Ziziphus mauritiana*), Parkinsonia (*Parkinsonia aculeata*) and Asthma Plant (*Euphorbia hirta*). Should a permit be granted, it is recommended that conditions be imposed on the permit to ensure that the Declared Plant, *Jatropha gossypifolia*, is controlled and not spread or introduced to non-infested areas.

The Department of Agriculture and Food Western Australia has assigned control codes P1 and P4 to *Jatropha gossypifolia* (banning the movement of plants or seeds within Western Australia). Infestations must be controlled by removal of all plants within 100 metres of a property boundary and within 50 metres of the high water mark of waterways, roads and other infrastructure (Argyle Diamonds Ltd, 2007). Whilst not Declared Plants, the other five introduced flora species in the area should not be spread or introduced to non-infested areas. Suitable permit conditions would ensure these species are adequately controlled.

From a faunal perspective, the proposed clearing area contains habitats which are well represented both locally and regionally (Mattiske Consulting Pty Ltd, 2006). Disturbance from cattle and introduced flora species (particularly the Declared Plant, *Jatropha gossypifolia*) are likely to have diminished the habitat values of the area. It is also relevant to note that the small loss of fauna habitat will be temporary, with rehabilitation of the site commencing at the cessation of the estimated three-year Mining Project (Argyle Diamonds Ltd, 2007).

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

Methodology

Argyle Diamonds Ltd (2007).
CALM (2001).
Mattiske Consulting Pty Ltd (2006).
GIS Database:
- Interim Biogeographic Regionalisation for Australia (Subregions) - EA - 18/10/00.

(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 site-specific fauna surveys have been conducted to accompany the Bow River Sand Mining project due to the limited extent of the area impacted, and the location of the proposed mining area within the river bed (Argyle Diamonds Ltd, 2007). However, numerous fauna surveys have been conducted on neighbouring mining lease M259SA (M70/259).

A total of 27 native mammal species, 19 amphibians, 79 reptiles and 129 bird species have been recorded to date in the Argyle Diamond Mine lease area (M259SA (M70/259)) (Argyle Diamonds Ltd, 2007). The following species of conservation significance may potentially use habitat within the proposed clearing area: Gouldian Finch; *Erythrura gouldiae* (Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2006*), Freshwater Crocodile; *Crocodylus johnstoni* (Schedule 4 - Other specially protected fauna, *Wildlife Conservation (Specially Protected Fauna) Notice, 2006*), Purple-Crowned Fairy-Wren; *Malurus coronatus coronatus* (Priority 4 -Taxa in need of monitoring, Department of Environment and Conservation's Priority Fauna List), Water Rat; *Hydromys chrisogaster* (Priority 4) and Lakeland Downs Mouse; *Leggadina lakedownensis* (Priority 4) (Biostat, 2003; Dames and Moore, 1982).

It should be noted that the proposed vegetation clearing will be kept to a necessary minimum, with the proposed four hectares of disturbance on the river bed to include largely unvegetated land. Large trees will be avoided, and it is estimated that less than 0.5 hectares of riparian vegetation will be removed for the Wesley Spring Creek crossing and entry down the river bank onto the bed of the Bow River (Argyle Diamonds Ltd, 2007).

Whilst the proposed clearing will inevitably result in a temporary loss of some nesting areas and foraging territories (Argyle Diamonds Ltd, 2007), this is not likely to be considered significant habitat given the small footprint of the project area and abundance of similar habitat in the bioregion. It is expected that no fauna species indigenous to Western Australia will be significantly impacted by this clearing proposal.

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

Methodology Argyle Diamonds Ltd (2007).
Biostat (2003).
Dames and Moore (1982).

(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**

There are no known records of Declared Rare Flora (DRF) or Priority Flora within the proposed clearing area (GIS Database). Mattiske Consulting Pty Ltd (2006) did not locate any DRF or Priority Flora within the proposed clearing area despite a flora and vegetation survey undertaken in July 2006.

Whilst the proposed clearing area provides habitat for a range of flora species, it is unlikely that the proposed clearing will result in a loss of significant habitat necessary for the continued existence of DRF or Priority Flora species.

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

Methodology Mattiske Consulting Pty Ltd (2006).
GIS Database:
- Declared Rare and Priority Flora List - CALM 01/07/05.

(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 known Threatened Ecological Communities (TEC's) within the proposed clearing area (GIS Database; Mattiske Consulting Pty Ltd, 2006). The nearest known TEC is located approximately 160 kilometres north-east of the area under application (GIS Database).

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

Methodology Mattiske Consulting Pty Ltd (2006).
GIS Database:
- Threatened Ecological Communities - CALM 12/04/05.

(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 area applied to clear is within the Interim Biogeographic Regionalisation for Australia (IBRA) Ord Victoria Plains bioregion (GIS Database). According to Shepherd et al (2001) there is approximately 100% of the pre-European vegetation remaining in the Ord Victoria Plains bioregion. The vegetation of the application area is classified as Beard Vegetation Association 833: Grasslands, short bunch grass savanna sparse low tree; scattered snappy gum over arid short grass on plains (GIS Database). There is approximately 100% of the pre-European vegetation remaining of Beard Vegetation Association 833 in the Ord Victoria Plains bioregion (Shepherd et al, 2001).

Whilst Beard Vegetation Association 833 is not represented in conservation reserves, the area proposed to clear does not represent a significant remnant of vegetation in the wider regional area. The proposed clearing will not reduce the extent of Beard Vegetation Association 833 below current recognised threshold levels, below which species loss increases significantly.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Ord Victoria Plain	5,497,882	5,497,188	~100	least concern	~5.9
Beard veg assoc. – State					
833	38,675	38,675	~100	least concern	0
Beard veg assoc. – Bioregion					
833	38,498	38,498	~100	least concern	0

* Shepherd et al. (2001) updated 2005
** 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 et al (2001).
GIS Databases:
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00.
- Pre-European Vegetation - DA 01/01.

(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

A majority of the proposed clearing area is located on the bed of the Bow River, a major ephemeral drainage line some 300 metres wide at the proposed mining area (Argyle Diamonds Ltd, 2007). The Bow River enters Lake Argyle, a RAMSAR Wetland, approximately 40 kilometres north-east of the proposed clearing area (Argyle Diamonds Ltd, 2007).

To allow access to the Bow River sand mining area, an access track approximately 950 metres long is proposed for construction. The proposed access track crosses the ephemeral Wesley Spring Creek, a smaller drainage line located north of the Bow River (GIS Database).

A flora and vegetation survey of the proposed clearing area was undertaken by Mattiske Consulting Pty Ltd in July 2006. The following vegetation communities were mapped from the area:

1. Woodland of *Eucalyptus camaldulensis var. obtusa* and *Melaleuca leucadendra* with *Terminalia cunninghamii*, *Terminalia hadleyana* over *Acacia holosericea*, *Buchanania obovata*, *Ficus coronulata* and **Cynodon dactylon* on sands in major drainage channels (riparian vegetation);

2. Open Woodland of *Bauhinia cunninghamii* with *Corymbia opaca* and *Hakea arborescens* over **Jatropha gossypifolia*, *Carissa spinarum*, *Chrysopogon fallax* and *Aristida holathera* on red clay loams; and

3. Hummock grassland of *Triodia bitextura* with *Aristida latifolia*, *Enneapogon purpurascens*, *Sporobolus australasicus* and emergent *Corymbia aspera* and *Eucalyptus brevifolia* on red clay loam.

* = introduced flora species

Results of the flora survey confirm that riparian vegetation is present within the proposed clearing area. Based on the above, the proposed clearing is at variance to this Principle.

However, Mattiske Consulting Pty Ltd (2006) report that none of the plant communities recorded within the proposed clearing area are considered to be locally or regionally significant. The presence of six introduced flora species in the area, including a significant infestation of Couch Grass (*Cynodon dactylon*) and *Jatropha gossypifolia* (a Declared Plant), further reduces the significance of the vegetation. Cattle trampling and grazing was also observed to have detrimental impacts in some areas (Mattiske Consulting Pty Ltd, 2006). Furthermore, it must be noted that the bed of the Bow River contains only sparse islands of vegetation, and the four hectares of disturbance proposed on the bed of the river will be restricted to areas where there is minimal vegetation, hence minimising the need for clearing (Argyle Diamonds Ltd, 2007).

Methodology Argyle Diamonds Ltd (2007).
Mattiske Consulting Pty Ltd (2006).
GIS Database:
- Hydrography, linear - DOE 01/02/04.

(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 proposed clearing area is located on the flat northern bank of the Bow River, and within the alluvium comprising the river bed (Dames and Moore, 1982; cited in Argyle Diamonds Ltd, 2007). Chocolate soils dominate the lower alluvial and colluvial plains, and undulating hills in the general area. Topsoil is typically coarse to medium textured, overlying fine-textured subsoils (Dames and Moore, 1982; cited in Argyle Diamonds Ltd, 2007). Mattiske Consulting Pty Ltd (2006) described the soils of the project area to consist of sands on the bed of the Bow River, and red clay loams on the plains. Argyle Diamonds Ltd (2007) describe the bed of the Bow River to consist of sands, silt and gravel.

Argyle Diamonds Ltd (2007) will implement a range of measures to ensure that the proposed clearing (and subsequent mining) operations do not result in appreciable land degradation. Such measures include:

- vegetation clearing will be undertaken during the dry season;
- all cleared vegetation will be stockpiled for later use in rehabilitation. Any topsoil removed from the proposed screening area will also be stockpiled for rehabilitation purposes. It is not expected that topsoil will be removed during clearing to construct the access track. Material on the river bed (proposed mining area) does not constitute topsoil;
- the removal of large trees will be avoided wherever possible;
- a buffer of six metres will be maintained around tree root zones to ensure that undercutting and collapse do not occur;
- the Wesley Spring Creek crossing and the main bank of the Bow River (serving as an access point for vehicles onto the river bed) will be lined with coarse quartzitic rip rap material to ensure that no scouring occurs during the wet season;
- the screening area will be lined with a thin layer of rock to minimise dust. Where dust becomes an issue it will be controlled by watering;
- rehabilitation of the project area will commence at the cessation of the mining operation. This includes re-spreading of cleared vegetation and any topsoil retained, stabilising the river bank using sufficient rock material to ensure that erosion does not occur, reinstating creek crossings by reshaping where required, ripping of compacted areas such as access tracks (should stakeholder consultation indicate that these should not be left in place), and assessing the requirement for manual seeding (Argyle Diamonds Ltd, 2007).

Given the small footprint of the proposal and the management measures outlined by Argyle Diamonds Ltd (2007), it is unlikely that the proposed vegetation clearing will result in appreciable land degradation.

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

Methodology

Argyle Diamonds Ltd (2007).
Mattiske Consulting Pty Ltd (2006).

(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

There are no conservation areas within close proximity to the proposed clearing area (GIS Database). The nearest conservation area is the Purnululu Conservation Reserve, located approximately 40 kilometres south of the proposed clearing area (GIS Database).

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

Methodology

GIS Database:
- CALM Managed Lands and Waters - CALM 01/07/05.

(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

A majority of the proposed clearing area is located on the bed of the Bow River, a major ephemeral drainage line that feeds into Lake Argyle (a RAMSAR wetland), some 40 kilometres north east of the proposed clearing area (Argyle Diamonds Ltd, 2007). In accordance with Sections 11, 17 and 21A of Part III of the *Rights in Water*

and Irrigation Act 1914, Argyle Diamonds Ltd have applied for a permit to interfere with bed and banks (Argyle Diamonds Ltd, 2007). This application is currently under assessment by the Kununurra Regional Office of the Department of Water (DoW). The DoW has advised that it has no objection to the proposed Bow River Sand Mining project (DoW, 2008).

Argyle Diamonds Ltd (2007) propose to undertake sand mining only during the dry season, with the volume of sand removed to be replaced by wet season floods and sand deposits. The material mobilised in the main river channel during the wet season would far outweigh any remobilised material from the mining area (Argyle Diamonds Ltd, 2007). Sedimentation associated with the proposed clearing is therefore not deemed to be a major issue.

The proposed clearing area is located within the Canning-Kimberley groundwater area proclaimed under the *Rights in Water and Irrigation Act 1914* (DoW, 2008). Argyle Diamonds Ltd (2007) have advised that sand mining will only proceed during the dry season to a depth of 1.5 metres. This will ensure that mining does not reach the water table.

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

Methodology Argyle Diamonds Ltd (2007).
DoW (2008).

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

Comments

Proposal is not likely to be at variance to this Principle

The proposed clearing area is located in a tropical monsoon climate, characterised by a distinct wet season from November to April, and a dry season from May to October (Mattiske Consulting Pty Ltd, 2006). The median annual rainfall is 673 millimetres over 63 rainfall days (Argyle Diamonds Ltd, 2007).

The proposed clearing area is mostly located on the bed of Bow River, which experiences natural flood events during the wet season (Argyle Diamonds Ltd, 2007). Depending on the amount of rainfall received during the wet season, some water may remain flowing in narrow river channels well into the dry season (Argyle Diamonds Ltd, 2007). The proposed clearing activities are not likely to increase the incidence or intensity of natural flood events.

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

Methodology Argyle Diamonds Ltd (2007).
Mattiske Consulting Pty Ltd (2006).

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

Comments

There are no native title claims over the area under application (GIS Database).There are no registered Sites of Aboriginal Significance within the area applied to clear (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal 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.

Methodology GIS Databases:
- Aboriginal Sites of Significance - DIA 04/07/02.
- Native Title Claims - DLI 19/12/04.

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Mineral Production	Mechanical Removal	5.8	The Clearing Principles have been addressed and the proposed clearing is at variance to Principle (f), is not likely to be at variance to Principles (a), (b), (c), (d), (g), (h), (i) or (j), and is not at variance to Principle (e). Should the permit be granted, it is recommended that conditions be imposed on the permit for the purposes of weed management, rehabilitation and permit reporting.

5. References

Argyle Diamonds Ltd (2007) Bow River Sand Mining Proposal: Mining Lease M80/114 - East Kimberley, Western Australia. November 2007.

Biostat (2003) Fauna Assessment of the Argyle Diamond Mine lease Report. Unpublished report for Argyle Diamond Mines Pty Ltd.

CALM (2001) Ord Victoria Plains 1 (OVP1 - Ord Subregion) in: A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions.

Dames and Moore (1982) Environmental Review and Management Programme for Ashton Joint Venture, Argyle Diamond Project. Dames and Moore, 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.

DoW (2008) Surface and Groundwater Management Advice for Land Clearing Application. Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR), received 22 January 2008.

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

Mattiske Consulting Pty Ltd (2006) Flora and Vegetation Survey of Sand Mining Lease M80/114 & Access Route L80/1: Bow River. Prepared for Argyle Diamonds Ltd. October 2006.

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia (updated 2005).

6. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government.
CALM	Department of Conservation and Land Management, Western Australia.
DAFWA	Department of Agriculture and Food, Western Australia.
DA	Department of Agriculture, Western Australia.
DEC	Department of Environment and Conservation
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DoE), Western Australia.
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia.
DoE	Department of Environment, Western Australia.
DoIR	Department of Industry and Resources, Western Australia.
DOLA	Department of Land Administration, Western Australia.
DoW	Department of Water
EP Act	Environment Protection Act 1986, Western Australia.
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System.
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	Rights in Water and Irrigation Act 1914, Western Australia.
s.17	Section 17 of the Environment Protection Act 1986, Western Australia.
TECs	Threatened Ecological Communities.

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.