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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2646/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Cemex Australia Pty Ltd**

1.3. Property details

Property: Mining Lease 37/508
Miscellaneous Licence 37/197
Prospecting Licence 37/6499
Local Government Area: Shire of Leonora
Colloquial name: Sullivan Creek Sand Extraction Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
3.58		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

Beard vegetation associations have been mapped at a 1:250,000 scale for the whole of Western Australia. One Beard vegetation association is located within the application area (Shepherd et al., 2001):

Vegetation Association 18: low woodland; Mulga (*Acacia aneura*).

Umwelt Environmental Consultants (Umwelt) conducted a Level 1 flora and vegetation survey of the application area. The survey consisted of a desktop review and two field surveys conducted in October and November 2007 (Umwelt, 2008).

Three vegetation units were recorded within the proposed clearing area (Umwelt, 2008):

1. ***Eucalyptus camaldulensis* riparian woodland with understorey dominated by *Acacia acuminata* and *Acacia aneura*.**

   This community borders Sullivan Creek extending to a distance of 5-10 metres from the edge of the creek. This community exhibits the greatest diversity and abundance of vegetation within the survey area, as well as the greatest percentage cover.

   The largest vegetation cover is provided by *Eucalyptus camaldulensis* (River Red Gum), and trees of this species typically grow to 15 metres in height and provide coverage varying between 30 and 50 percent. Overall vegetation coverage in the community is approximately 70 percent.

   Acacia acuminata and *A. aneura* dominate the middle storey, with *Eremophila* and *Senna* species also well represented. The understorey is composed of a suite of herbs and grasses. Grasses in this vegetation community have typically been grazed to ground level.

2. ***Acacia acuminata* open shrubland with mixed *Senna* and *Eremophila* species.**

   This vegetation community occupies the greater part of the surveyed area.

Clearing Description

CEMEX Australia Pty Ltd (CEMEX) has applied to clear up to 3.58 hectares of native vegetation at its Sullivan Creek sand extraction project (GIS Database). The proposed clearing is located approximately 37 kilometres north-west of Leonora (GIS Database).

The operation will be of a small scale, with extraction and screening confined to between 1000 and 3000 tonnes of alluvial sand per annum (CEMEX, 2008).

Minor clearing will be required fringing Sullivan Creek to provide access to the creek off Darlot Road, and to establish areas to stockpile topsoil and the extraction product.

The bed of Sullivan Creek itself is largely devoid of vegetation, with isolated River Red Gums. Minor clearing may be required to excavate sand to a depth of approximately 0.7 metres (CEMEX, 2008).

Clearing will occur by mechanical means using a bulldozer or front-end loader and cleared vegetation will be retained for rehabilitation purposes (CEMEX, 2008).

Vegetation Condition

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

to

Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).

Comment

The vegetation condition rating was obtained from a flora and vegetation survey of Mining Lease 37/508 conducted by Umwelt (2008).

The survey reports that the tenement has some disturbances in the form of fences, tracks, grazing and weed encroachment, however, in areas outside of this disturbance the condition of vegetation in much of the project site was generally good (Umwelt, 2008).

This vegetation community is sparsely vegetated, with approximately 90 percent of the soil surface being bare and devoid of vegetation. Soil varies between deep clay loams on the flats above the creek bank-side slopes to indurated red-brown hardpan with shallow sandy loam drifts on the slopes bordering the creek.

Scattered medium to tall shrubs, to a maximum height of approximately 3 metres, dominate this vegetation community, which has a mixed grass and low shrub understorey.

3. ***Acacia acuminata*** **open shrubland, with** ***Hakea*** **and** ***Grevillea*** **species.**

This vegetation community occupies a relatively small area at the proposed project site. However, this community occurs extensively on the opposite (eastern) side of Sullivan Creek.

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 is located within the East Murchison subregion of the Murchison Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This region is characterised by internal drainage, and extensive areas of elevated red desert sandplains with minimal dune development (CALM, 2002). The vegetation is dominated by Mulga woodlands often rich in ephemerals; hummock grasslands, saltbush shrublands and *Halosarcia* shrublands (CALM, 2002).

A flora and vegetation survey has been conducted over Mining Lease 37/508 by Umwelt in Spring 2007. Umwelt (2008) recorded a total of 53 flora taxa, representing 23 families and three vegetation communities (Umwelt, 2008). The most common families recorded were *Mimosaceae* (7 taxa), *Chenopodiaceae* (5 taxa), *Myoporaceae* (5 taxa) and *Poaceae* (4 taxa) (Umwelt, 2008). All flora and vegetation communities recorded in the proposed clearing area are well represented in adjacent areas (Umwelt, 2008).

Umwelt (2008) recorded four introduced flora species within the application area: Wild Sage (*Salvia verbenaca*), Blue Pimpernel (*Anagallis arvensis* var. *caerulea*), Malta Star Thistle (*Centaurea melatensis*) and Coral Cactus (*Cylindropuntia fulgida* var. *mamillata*). The presence of introduced flora species lowers the biodiversity value of the application area. Care must be taken to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested areas. Should a clearing permit be granted, it is recommended that a condition be imposed for the purposes of weed management.

The Assessing Officer, DMP, performed a search of the Western Australian Museum Fauna Database for fauna species that may occur within a 50 kilometre radius of the application area. The search identified up to 5 mammals from 4 families, 24 reptiles from 6 families, 15 birds from 12 families and 3 amphibians from 2 families (Western Australia Museum, 2008). These results would indicate that the application area would not be particularly high in fauna diversity, however, this diversity may increase on the rare occasion when the ephemeral Sullivan Creek contains water (Umwelt, 2008).

One riparian vegetation community is present within the proposed clearing area. Riparian vegetation communities are considered to be sensitive and of significant environmental value (Umwelt, 2008). The scale and nature of the proposed clearing is unlikely to significantly impact upon biodiversity in a local or regional sense. The preservation of large River Red Gums will minimise the impact on ecological and migratory linkages for fauna species and thus should be imposed as a condition on the permit.

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

Methodology

CALM (2002)
Umwelt (2008)
Western Australia Museum (2008)
GIS Database:
- Interim Biogeographic Regionalisation of Australia

(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 search of Department of Environment and Conservation (DEC) databases conducted by the DEC on behalf of the proponent, revealed five fauna species of conservation significance previously recorded within a 50 kilometre radius of the application area (DEC, 2008). In addition, an *Environment Protection and Biodiversity Conservation* (*EPBC*) *Act* Protected Matters Report was generated for an area of approximately 21,000

hectares, encompassing Sullivan Creek (Umwelt, 2008). The *EPBC Act* search indicated that one threatened species and three migratory species could potentially occur within the search area (DEWR, 2007).

The species most likely to occur within the application area based on habitat preferences and known distributions are listed below (DEWR, 2007; DEC, 2008):

- Rainbow Bee-eater (*Merops ornatus*) – Marine and Migratory (*EPBC Act 1999* and Japan-Australia Migratory Bird Agreement);
- Great Egret (*Ardea alba*) - Marine and Migratory (*EPBC Act 1999* and Japan-Australia Migratory Bird Agreement); and
- Australian Bustard (*Ardeotis australis*) - Priority 4 on the DEC's Threatened and Priority Fauna list.

The species listed above all have wide distributions and habitat ranges, therefore, the vegetation of the application area is unlikely to represent significant habitat for these species.

One sensitive riparian vegetation community exists in the proposed clearing area which may play a role in providing ecological and migratory linkages for fauna (Umwelt, 2008). The retention of larger River Red Gums will help to maintain ecological and migratory linkages provided by the riparian vegetation community (Umwelt, 2008).

The Assessing Officer, DMP notes that the vegetation density in the proposed clearing area is sparse and the proposed clearing will be progressive and of a small scale. Whilst it is unlikely that the proposal will impact upon significant fauna habitat, a precautionary approach is recommended and therefore appropriate conditions should be imposed on any permit granted to CEMEX to ensure large River Red Gums are retained.

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

Methodology DEC (2008)
DEWR (2007)
Umwelt (2008)

(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**
Umwelt (2008) undertook a flora and vegetation survey of an area that included the proposed clearing area. This survey was conducted in accordance with EPA Guidance Statement 51: *Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia* (EPA, 2004). The survey included a desktop review as well as field surveys performed in October and November 2007 (Umwelt, 2008).

Umwelt (2008), report that there are no known Declared Rare Flora (DRF) within the proposed clearing area. Umwelt (2008) identified a Priority 4 species as occurring within the application area; *Hemigenia exilis*. The survey performed by Umwelt (2008) identified 236 *Hemigenia exilis* individuals within the survey area, 45 of which occur on Mining Lease 37/508. Umwelt (2008) report that 4 *Hemigenia exilis* individuals occur within the area of proposed operations, however, mining infrastructure will be sited so as to avoid disturbance to these plants.

Based on the number of *Hemigenia exilis* individuals occurring in areas surrounding the application area and CEMEX's commitment to avoid disturbing individuals of this species, it is not expected that the proposed clearing would have an impact on the conservation status of this species.

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

Methodology EPA (2004)
Umwelt (2008)
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**
There are no known Threatened Ecological Communities (TECs) within the area applied to clear (GIS Database). The nearest known TEC is the Depot Springs Stygofauna community, located approximately 125 kilometres north-west of the application area.

Umwelt (2008) report that no TECs were identified during the flora and vegetation survey of the application area.

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

Methodology Umwelt (2008)
GIS Database:

- Threatened Ecological Communities

(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 IBRA Murchison Bioregion (GIS Database). Shepherd (2007) report that approximately 100% of the pre-European vegetation still exists in this Bioregion (see table). The vegetation in the application area is recorded as the following Beard Vegetation Association (Shepherd, 2007):

- **Vegetation Association 18**: low woodland; Mulga (*Acacia aneura*)

According to Shepherd (2007) approximately 100% of this vegetation association remains within the bioregion (see table below).

Therefore, the vegetation within the application area is not a significant remnant of native vegetation within an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% of Pre-European area in IUCN Class I-IV Reserves (and current %)
IBRA Bioregion – Murchison	28,120,558	28,120,558	~100	Least Concern	1.1
Beard veg assoc. – State					
18	19,892,437	19,890,348	~100	Least Concern	2.1
Beard veg assoc. – Bioregion					
18	12,403,248	12,403,248	~100	Least Concern	0.4

* Shepherd (2007)
** 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 (2007)
GIS Database:
- Interim Biogeograpgical Regionalisation of Australia

(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

The proposed clearing is for a small scale sand extraction project that is based around Sullivan Creek (Umwelt, 2008). Sullivan Creek is primarily ephemeral, with most waterholes containing water only on a seasonal basis (Umwelt, 2008). Sullivan Creek flows in a south-easterly direction and intermittent ponding has been observed in the creek following rainfall (Umwelt, 2008).

One riparian vegetation community occurs within the proposed clearing area (Umwelt, 2008). In accordance with section 17 of the *Rights in Water and irrigation Act 1914*, CEMEX have applied for a bed and banks permit through the Department of Water to disturb the bed and banks of Sullivan Creek (Umwelt, 2008).

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

However, CEMEX have committed to reducing impacts to riparian vegetation by ensuring all *Eucalyptus camaldulensis* trees growing in the riparian vegetation community fringing Sullivan Creek are retained, as well as those *Eucalyptus camaldulensis* trees with a diameter of 150 millimetres or greater growing within the bed of Sullivan Creek.

It is recommended that suitable conditions be imposed on any permit issued to CEMEX to minimise impacts to riparian vegetation.

Methodology

Umwelt (2008)

(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 mapped as occurring within the Wilson Land System (GIS Database). The Wilson Land System consists of large creeks with extensive distributary fans, supporting Mulga and halophytic shrublands (Payne et al, 1998). Large proportions of this land system are severely degraded and eroded (Payne et al, 1998). The drainage tracts, alluvial fans and hardpan plains are most extensively eroded (Payne et al, 1998). The vegetation of this land system is highly preferred for grazing by introduced and native animals, rendering it susceptible to overgrazing and consequent degradation (Payne et al, 1998).

Within the application area the landform most likely to be found is drainage tracts (Payne et al, 1998). This landform consists of narrow alluvial plains, subject to overbank flooding with the soils consisting of shallow red earth on hardpan (Payne et al, 1998). Sullivan Creek is an incised channel fringed by *Eucalyptus camaldulensis* and bordered by *Acacia aneura* open woodland (Umwelt, 2008).

The clearing of native vegetation is unlikely to cause appreciable land degradation as the density of existing vegetation at sites to be cleared is low, and in addition, the hardpan soils which occur across sloping parts of the site are resistant to erosion (Umwelt, 2008).

The bed of Sullivan Creek contains alluvial sand deposits overlying hardpan (Umwelt, 2008). Remnant flood debris indicates that the creek experiences high intensity flows following cyclonic rainfall events (Umwelt, 2008). This infers that large quantities of material, including alluvial sand, are transported and replenished within the creek as a result of these high intensity rainfall events (Umwelt, 2008). Soil deposits beside the creek are sparse and indurated red-brown hardpan occurs at the surface in places with little or no loose soil cover (Umwelt, 2008). These hardpans are dense, impermeable to water and resistant to weathering (Pringle et al, 1994 as cited in Umwelt, 2008).

CEMEX propose to stage the project, with work commencing in the south of the tenement and gradually moving northwards (Umwelt, 2008). At the completion of each project stage, the access track and stockpile area which has been in use will be rehabilitated as the project moves to the next stage (Umwelt, 2008).

Should a clearing permit be granted, it is recommended that conditions be imposed requiring the proponent to undertake clearing in a staged approach and to retain topsoil and vegetation for use in rehabilitation.

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

Methodology

Umwelt (2008)
Payne et al (1998)
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 nearest conservation area is an un-named reserve, located approximately 8 kilometres south-east of the application area (GIS Database). Given the distance of the application area from any conservation areas, the progressive removal of 3.58 hectares of native vegetation is not expected to have an 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:
- CALM Managed Land and Waters

(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 proposal is located in and adjacent to Sullivan Creek, within which surface water only occurs on an intermittent basis (Umwelt, 2008). Vegetation clearing will only be undertaken during dry conditions thereby mitigating impacts to surface water quality (Umwelt, 2008). Sparse vegetation occurs on the bed of Sullivan Creek, the clearing of which is not expected to alter natural flow regimes or water quality.

The proposed clearing area is not located within a Public Drinking Water Source Area (GIS Database). The groundwater within the application area occurs at depth and no groundwater will be extracted on site for use by the proposed project (Umwelt, 2008). Vegetation removal will be minimal and progressive, and is therefore unlikely to impact upon groundwater levels or quality.

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

Methodology Umwelt (2008)
GIS Database:
- 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 area is located within the Raeside-Ponton catchment area (GIS Database). Natural flooding can occasionally occur within this catchment area during the summer months, usually following significant rainfall associated with tropical cyclone events (BoM, 2008).

The progressive clearing of 3.58 hectares of native vegetation, in comparison to the Raeside-Ponton catchment area (approximately 11,589,533 hectares) (GIS Database), is not likely to cause or exacerbate the incidence or intensity of flooding.

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

Methodology BoM (2008)
GIS Database:
- Hydrographic Catchments - Catchments

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

Comments

There are two native title claims (WC99/001 and WC99/010) over the area under application (GIS Database). These claims have been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenements have 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 is one Aboriginal Site of Significance within the application area (Site ID: 17972) (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.

There were no submissions received during the public comment period.

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

4. Assessor's comments

Comment

The proposal has been assessed against the Clearing Principles, and the proposal is at variance to Principle (f), is not likely to be at variance to Principles (a), (b), (c), (d), (g), (h), (i) and (j) and is not at variance to Principle (e).

Should the permit be granted, it is recommended that conditions be imposed for the purposes of minimising impacts to riparian vegetation, weed management, rehabilitation, staged clearing, record keeping and permit reporting.

5. References

BoM (2008) Climate Statistics for Australian Locations. Bureau of Meteorology. Available online from: http://www.bom.gov.au. Accessed 13 November 2008.

CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.

CEMEX (2008) Clearing Permit Application Supporting Documentation, September 2008.

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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.

DEWR (2007) EPBC Act Protected Matters Report. Department of Environment and Water Resources, Western Australia.

EPA (2004) Guidance for the Assessment of Environmental Factors - terrestrial flora and vegetation surveys for Environmental Impact Assessment in Western Australia. Report by the EPA under the Environmental Protection Act 1986. No. 51 WA.

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

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Shepherd, D.P. (2007) 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. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.

Umwelt (2008) Sullivan Creek Sand Extraction Project Mining Proposal: Mining Lease M37/508. Umwelt (Australia) Pty Ltd, Western Australia.

Western Australia Museum (2008) Faunabase - Western Australian Museum, Queensland Museum and Museum and Art Gallery of NT Collections Database. Available online from: http://museum.wa.gov.au/faunabase/prod.index.htm. Accessed 13 November 2008.

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.
DMP	Department of Mines and Petroleum, 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.