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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4620/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Hanson Construction Materials Pty Ltd**

1.3. Property details

Property: Mining Lease 47/359
Mining Lease 47/464
Local Government Area: Shire of Roebourne
Colloquial name: Cleaverville Beach Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
8.223		Mechanical Removal	Sand Excavation

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 27 June 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 and are useful to look at vegetation in a regional context. The following Beard vegetation associations are located within the application area (GIS Database):

43: Low forest; mangroves (Kimberley) or thicket; mangroves (Pilbara); and

157**:** Hummock grasslands, grass steppe; hard spinifex, *Triodia wiseana.*

On 10 May 2011 Astron Environmental Services (Astron) undertook a flora and vegetation survey of the application area and identified the following vegetation associations (Astron, 2011b):

Ru1: *Triodia wiseana* hummock grassland with scattered shrubs of *Acacia bivenosa, Acacia inaequilatera.* On lower stony hill slope tapering into coastal dunes;

RuDis: *Aerva javanica / Corchorus parviflorus* low shrubland over regenerating mixed grassland of *Triodia angusta, Triodia wiseana, Cenchrus ciliaris* over herbland of *Euphorbia australis, Hybanthus aurianticus.* Burnt lower stony hill slope;

Li1: *Acacia bivenosa, Acacia inaequilatera* tall shrubland with *Acacia pyrifolia* over closed mixed grassland of *Triodia angusta* and *Cenchrus ciliaris.* Scattered to low shrubland of *Aerva javanica.* There are small pockets of *Acacia inaequilatera, Eremophila longiflora, Ehretia saligna* tall shrubs. On lower landward facing dune slope;

Li2: *Cenchrus ciliaris* closed grassland with scattered to open tall *Acacia coriacea, Acacia bivenosa* tall shrubs. Patchy and scattered shrubs of *Aerva javanica.* On upper landward facing dune slope;

Li3: *Acacia coriacea* tall shrubland over *Cenchrus ciliaris* tussock grassland. On crest of dune;

Li4: *Acacia coriacea* low shrubland to low open heath over mixed *Whiteochloa airoides, Spinifex longfolius* and *Cenchrus ciliaris* tussock grassland. Patchy, scattered *Aerva javanica.* On seaward face of dune; and

LiDis: *Cenchrus ciliaris* patchy grassland. Scattered *Acacia bivenosa, Acacia pyrifolia, Aerva javanica* and patchy *Stylosanthes hamata.* On fringes only of highly disturbed old quarry site.

Clearing Description Hanson Construction Materials Pty Ltd (Hanson) is proposing to clear up to 18.539 hectares within an application area of approximately 18.55 hectares. The proposed clearing is for the purpose of sand mining.

Vegetation Condition Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994);

to

Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994).

Comment

The vegetation condition was assessed by a botanist from Astron.

Part of Mining Lease 47/359 has been previously mined and appears to be used as a trail bike area (Astron, 2011). There is also a well established camping ground to the west of the application area.

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 may be at variance to this Principle

A flora and vegetation survey of the application area identified seven vegetation associations within the application area (Astron, 2011b). None of these vegetation associations have been identified as a Threatened or Priority Ecological Community (Astron, 2011b). The large majority of the vegetation within the application area is associated with the coastal dune landform. Coastal dunes on the Pilbara coastline are rarely occurring and because of their restricted nature, this landform has elevated conservation value (Astron, 2011b).

There was a total of 85 flora taxa from 27 families and 60 genera recorded during the flora survey (Astron, 2011b). The most common families were Fabaceae (21 species) and Poaceae (10 species). None of the species recorded were identified as Threatened or Priority Flora species (Astron, 2011b). There were four weed species recorded within the application area; Kapok Bush (*Aerva javanica*), Buffel Grass (*Cenchrus ciliaris*), Verano Stylo (*Stylobasium hamata*) and Spiked Malvastrum (*Malvastrum americanum*) (Astron, 2011b). Buffel Grass was the dominant grass cover in three of the vegetation associations. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

A search by the Assessing Officer of DEC's NatureMap revealed records of 34 bird, one amphibian and nine reptile species within 2 kilometres of the application area (DEC, 2013). Given its proximity to the coast it appears that the application area is frequented by marine and shorebirds, however, it is not expected that it would support a high level of diversity among other fauna groups.

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

Methodology

Astron (2011b)
DEC (2013)

(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 may be at variance to this Principle

There were two broad fauna habitats identified within the application area; Coastal Dunes and Lower Hill Slope (Astron, 2011b). The Lower Hill Slope only occupied a minor part of the application area (0.7 hectares) (Astron, 2011b). A search by the Assessing Officer of DEC's NatureMap revealed records of 34 bird, one amphibian and nine reptile species within 2 kilometres of the application area (DEC, 2013). A desktop search by Astron (2011b) identified that the application area may support species of waterbird, shorebird and marine species. Some may use the sandy beaches for possible nesting and areas of mudflats north of the application area will be used by waders and shorebirds for feeding (Astron, 2011b). Dune areas were searched for the presence of White-bellied Sea-eagle (*Haliaeetus leucogaster*) nests, however, none were found (Astron, 2011b). Whilst it is possible that small mammals and reptiles may utilise the application area, it appears that it would be more significant for avian species in the local area.

The fossorial skink species *Lerista nevinae* (Schedule1) is known from coastal dunes in the Karratha area. As part of surveys for other projects in the Karratha area there has been searches undertaken for *Lerista nevinae* at Cleaverville Beach (Biota Environmental Sciences, 2008; Phoenix Environmental Sciences, 2010). These searches failed to record *Lerista nevinae* at Cleaverville Beach. It has been observed that other members of the *Lerista muelleri* species complex were recorded at locations where *Lerista nevinae* was not recorded and no site were two or more species of the "*muelleri*" species group were recorded (Biota Environmental Sciences, 2008). Based on this, it would appear that this group of species are occupying the same microhabitat and it has been suggested that *Lerista nevinae* may not be present at Cleaverville Beach due to the presence of *Lerista verhmens* (Biota Environmental Sciences, 2008).

Cleaverville Beach is known to support a low density of Flatback Turtle (*Natator depressus* – Schedule 1; Vulnerable) nesting sites (Biota Environmental Sciences, 2009; Pendoley Environmental, 2010). Advice from Species and Communities Branch at DEC is that even if the level of nesting is low to moderate density the beach is still significant for Flatback Turtles (DEC, 2012). The application area includes parts of the beach and the fore dune which should be avoided. Hanson Construction Materials has committed within their environmental management plan (Astron, 2011a) to not encroach seaward closer than the nine metre contour. On average this is approximately 20 metres back from the tenement boundary. At this distance there will still be a large portion of the fore dune that will be cleared. It is advised that the proposed activity should not impact the beach and ensure that some of the protective dune is maintained to minimise the impact on the beach as a turtle nesting site (DEC, 2012). Impacts to Flatback Turtles may be minimised by the implementation of a condition restricting clearing of the fore dune.

The coastal dunes which occupy the majority of the application area are highly susceptible to wind erosion if vegetation cover is removed (Van Vreeswyk et al., 2004). The erosion of the coastal dunes has the potential to increase sedimentation into the ocean. This may have an impact on marine species, in particular coral which is located approximately 200 metres north of the application area. There are also areas of mangrove habitat within one kilometre either side of the application area that may be impacted by increased sedimentation. Impacts from sedimentation may be minimised by the implementation of a condition restricting clearing of the fore dune.

The application area has the potential to be utilised by a number of bird species listed as Migratory under the *EPBC Act 1999* (Astron, 2011b). However, whilst these species may utilise the application area it is not expected that the application area would represent significant habitat for bird species in the local area.

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

Methodology
Astron (2011a)
Astron (2011b)
Biota Environmental Sciences (2008)
Biota Environmental Sciences (2009)
DEC (2012)
DEC (2013)
Pendoley Environmental (2010)
Phoenix Environmental Sciences (2010)
Van Vreeswyk et al. (1994)

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

Comments

Proposal is not likely to be at variance to this Principle

According to available databases, there are no records of any Threatened Flora within the application area (GIS Database). A flora survey was undertaken within the application area by Astron on 10 May 2011. This survey did not record any flora species identified as Threatened Flora (Astron, 2011b).

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

Methodology
Astron (2011b)
GIS Database:
- Threatened and Prioirty 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

According to available databases, there are no records of any Threatened Ecological Communities (TECs) within the application area (GIS Database). A vegetation survey of the application area was undertaken by Astron on 10 May 2011. This survey did not identify any vegetation communities as being a TEC (Astron, 2011b).

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

Methodology
Astron (2011b)
GIS Database:
- Threatened Ecological Sites Buffered

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

Comments

Proposal is not at variance to this Principle

The application area falls within the Pilbara Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 99.6% of the pre-European vegetation remains (see table) (Government of Western Australia, 2013; GIS Database).

The vegetation of the application area has been mapped as the following Beard vegetation association (GIS Database):

43: Low forest; mangroves (Kimberley) or thicket; mangroves (Pilbara); and
157**:** Hummock grasslands, grass steppe; hard spinifex, *Triodia wiseana.*

There were no mangroves recorded within the application area, therefore, the vegetation is not representative of Beard vegetation association 43. Both of these Beard vegetation associations are well represented at both a state and bioregional level (see table). The local area has not been extensively cleared and the application area itself is neither a remnant nor does it form part of any remnant in the local area (GIS Database).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DEC Managed Land
IBRA Bioregion – Pilbara	17,808,657	17,733,583	~99.6	Least Concern	8.4
Beard veg assoc. – State					
43	217,449	183,249	~84.3	Least Concern	23
157	502,728	499,311	~99.3	Least Concern	18.1
Beard veg assoc. – Bioregion					
43	17,053	14,708	~86.2	Least Concern	0.03
157	199,832	198,409	~99.2	Least Concern	5.7

* Government of Western Australia (2013)
** 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)
Government of Western Australia (2013)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Pre-European Vegetation

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments

Proposal is at variance to this Principle

There is one ephemeral drainage line within the application area (GIS Database). The drainage line is a continuation of drainage lines associated with the hills to the south of the beach and flows out into the ocean (Astron, 2011b). None of the vegetation associations identified within the application are exclusively growing within the area surrounding this drainage line (Astron, 2011b). There are a number of drainage lines in the local area that flow out to the coast (GIS Database). The proposed clearing has the potential to alter the natural drainage from the hills to the south to the coast. In their Environmental Management Plan, Hanson committed to retaining a 20 metre buffer to this drainage line (Astron, 2011a). Impacts to this watercourse may be minimised by the implementation of a condition restricting clearing adjacent to the watercourse.

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

Methodology Astron (2011a)
Astron (2011b)
GIS Database:
- Dampier and Extentions 50cm Orthomosaic
- Hydrology, linear

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Comments

Proposal is at variance to this Principle

The application area has been mapped as occurring on the Littoral land system (GIS Database). The application area consists almost entirely of the coastal Dunes landform (Van Vreeswyk et al., 2004). The coastal dunes of this land system are highly susceptible to wind erosion if vegetation cover is removed (Van Vreeswyk et al., 2004). The proposed clearing has the potential to impact on dune stability, which may lead to erosion within and outside the application area. Removal of vegetation cover may also lead to an increased surface water runoff, which would exacerbate the potential erosion impacts. Impacts from erosion may be minimised by the implementation of a condition restricting clearing of the fore dune.

At a broad scale the surface soil of the application area has a pH of 6.0 to 7.5 and the application area has a moderate to low risk of acid sulphate soils (CSIRO, 2009, GIS Database).

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

Methodology CSIRO (2009)
Van Vreeswyk et al. (2004)

GIS Database:
- Acid Sulphate Soil Risk Map, Pilbara Coastline
- Rangeland Land System Mapping

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

Comments

Proposal is not likely to be at variance to this Principle

The application area does not lie within any conservation areas or DEC managed lands (GIS Database). The nearest conservation area is an Un-named Nature Reserve located 20 kilometres north of the application area on an offshore island (GIS Database). The nearest onshore conservation area is the Millstream-Chichester National Park located approximately 55 kilometres south of the application area (GIS Database). Given the distance between the application area and the National Park, the proposed clearing is not likely to impact the environmental values of any conservation areas.

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

Methodology

GIS Database:
- DEC Tenure

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

Comments

Proposal may be at variance to this Principle

The application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). There is one minor non-perennial watercourse within the application area (GIS Database). This watercourse is likely to only flow following heavy rains. The coastal dunes which this watercourse flows through are highly susceptible to wind erosion if vegetation cover is removed (Van Vreeswyk et al. 2004). Erosion of the coastal dune system is likely to cause an increase in sedimentation within this watercourse when it does flow. Impacts to surface water quality may be minimised by the implementation of a condition restricting clearing of the fore dune and watercourse.

The groundwater within the application area is between 1,000 to 3,000 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database). This is considered to be brackish. The removal of vegetation on the coastal dunes has the potential to cause blowouts. In some cases blowouts can be eroded down to the water table causing water to be exposed. Exposing the water table increases the risk of water quality being impacted from external sources.

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

Methodology

Van Vreeswyk et al. (2004)
GIS Database:
- Groundwater Salinity, Satewide
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)

(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 may be at variance to this Principle

The coastal dunes which occupy the majority of the application area are highly susceptible to wind erosion if vegetation cover is removed (Van Vreeswyk et al., 2004). The erosion of the coastal dune system has the potential to lead to coastal flooding from a storm surge or cyclonic activity (Astron, 2011b). The risk of the erosion of the coastal dune could be reduced should there be some vegetation retained to help stabilise the dune. Potential flooding risks may be minimised by the implementation of a condition restricting clearing of the fore dune.

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

Methodology

Astron (2011b)
Van Vreeswyk et al. (2004)

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

Comments

The clearing permit application was advertised on 3 October 2011 by the Department of Mines and Petroleum inviting submissions from the public. One submission was received raising concerns over the proposed clearings impacts. In particular it raised concerns over the potential for erosion of the coastal dunes, the alteration of natural drainage increasing sedimentation that could impact coral and the impacts to the public who swim and camp at the beach. Excluding the impacts on the social use of the area the other concerns raised have been assessed under Principles (b), (f), (g), (i) and (j).

The project was referred to the Environmental Protection Authority (EPA) by the Department on 29 December 2011. On 14 May 2012 the EPA determined that project was "Not Assessed - Public Advice Given".

The application area is known as Cleaverville Beach and is a popular beach for locals and tourists. There is also an established campsite immediately west of the application area. This camping area also extends into the west of the application area. The proposed clearing of the application area will have significant impacts on the amenity of Cleaverville Beach for the public.

There is one native title claim over the area under application (GIS Database). This claim (WC99/14) was determined by the Federal Court on 2 May 2005 (GIS Database). However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

According to available databases, there is 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 noted that the proposed clearing may impact on a protected matter under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). The proponent may be required to refer the project to the (Federal) Department of Sustainability, Environment, Water, Population and Communities (SEWPAC) for environmental impact assessment under the EPBC Act. The proponent is advised to contact the SEWPAC for further information regarding notification and referral responsibilities under the EPBC Act.

Due to the addition of condition 4 on the permit, the area approved to clear has been reduced to 8.223 hectares from the 18.539 hectares applied by Hanson.

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 Database:
- Aboriginal Sites of Signficance
- Native Title Claims - Determined by the Federal Court

4. References

Astron (2011a) Cleaverville Beach Tenements M47/359 and M47/464 Environmental Management Plan. Unpublished report for Hanson Construction Materials Pty Ltd, dated November 2011.

Astron (2011b) Cleaverville Beach Tenements M47/359 and M47/464 Vegetation, Flora and Fauna Survey. Unpublished report for Hanson Construction Materials Pty Ltd, dated June 2011.

Biota Environmental Sciences (2008) A Survey of Coastal Dunes Between Cossack and Karratha for Lerista nevinae. Unpublished report for the Pilbara Iron Company, dated August 2010.

Biota Environmental Sciences (2009) Turtle Monitoring at Bells Beach and Selected Rookeries of the Dampier Archipelago: 2008/09 Season. Unpublished report for Rio Tinto Iron Ore, dated August 2009.

CSIRO (2009) Australian Soil Resource Information System. Available online at: http://www.asris.csiro.au/index_ie.html Accessed on 20 December 2011.

DEC (2012) Advice from Species and Communities Branch, Department of Environment and Conservation. Received by the Assessing Officer on 15 August 2012.

DEC (2013) NatureMap: Mapping Western Australia's Biodiversity - Department of Environment and Conservation. http://naturemap.dec.wa.gov.au/default.aspx (Accessed 20 June 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.

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

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.

Pendoley Environmental (2010) API Project Anketell Point Marine Turtle Surveys. Unpublished report for AECOM, dated 22 January 2010.

Phoenix Environmental Sciences (2010) Terrestrial Vertebrate Fauna Survey for Anketell Point Rail Alignment and Port Projects. Unpublished report for Australian Premium Iron Management Pty Ltd, dated 26 July 2010.

Van Vreeswyk, A.M.E., Payne, A.L., Hennig, P., and Leighton, K.A. (2004) An Inventory and Condition Survey of the Pilbara Region, Western Australia, Department of Agriculture, Western Australia.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
CALM	Department of Conservation and Land Management (now DEC), Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DEC), Western Australia
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DoE	Department of Environment (now DEC), Western Australia
DoIR	Department of Industry and Resources (now DMP), Western Australia
DOLA	Department of Land Administration, Western Australia
DoW	Department of Water
EP Act	Environmental Protection Act 1986, Western Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
RIWI Act	Rights in Water and Irrigation Act 1914, Western Australia
s.17	Section 17 of the Environment Protection Act 1986, Western Australia
TEC	Threatened Ecological Community

Definitions:

{Atkins, K (2005). *Declared rare and priority flora list for Western Australia, 22 February 2005*. Department of Conservation and Land Management, Como, Western Australia} :-

P1 **Priority One - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

P2 **Priority Two - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

P3 **Priority Three - Poorly Known taxa**: taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.

P4 **Priority Four – Rare taxa**: taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.

R **Declared Rare Flora – Extant taxa** *(= Threatened Flora = Endangered + Vulnerable)*: taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

X **Declared Rare Flora - Presumed Extinct taxa**: taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-

Schedule 1 **Schedule 1 – Fauna that is rare or likely to become extinct:** being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.

Schedule 2 **Schedule 2 – Fauna that is presumed to be extinct:** being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.

Schedule 3 **Schedule 3 – Birds protected under an international agreement:** being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.

Schedule 4 **Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

{CALM (2005). *Priority Codes for Fauna*. Department of Conservation and Land Management, Como, Western Australia} :-

P1 **Priority One: Taxa with few, poorly known populations on threatened lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P2 **Priority Two: Taxa with few, poorly known populations on conservation lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P3 **Priority Three: Taxa with several, poorly known populations, some on conservation lands**: Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P4 **Priority Four: Taxa in need of monitoring**: Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.

P5 **Priority Five: Taxa in need of monitoring**: Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

Categories of threatened species (*Environment Protection and Biodiversity Conservation Act 1999)*

EX **Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.

EX(W) **Extinct in the wild:** A native species which:
(a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
(b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

CR **Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.

EN **Endangered:** A native species which:
(a) is not critically endangered; and
(b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.

VU **Vulnerable:** A native species which:
(a) is not critically endangered or endangered; and
(b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

CD **Conservation Dependent:** A native species which is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.