



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3466/1
Permit type: Purpose Permit

1.2. Proponent details

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

1.3. Property details

Property: Mining Lease 52/59
Local Government Area: East Pilbara
Colloquial name: Newman Quarry

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
9.748		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
<p>Beard Vegetation Associations have been mapped at a 1:250,000 scale for the whole of Western Australia. One Beard Vegetation Association has been mapped within the application area (GIS Database):</p> <p>82: Hummock grasslands, low tree steppe; snappy gum over <i>Triodia wiseana</i> (Kendrick, 2001).</p> <p>Animal Plant Mineral Pty Ltd (APM, 2009) on behalf of Holcim Pty Ltd, conducted a vegetation survey over the application area and surrounding vegetation between the 7 to 9 October, 2009. Seven vegetation types have been identified within the application area (APM, 2009). These are:</p> <p>Hills and Low Rises</p> <p>1) <i>Eucalyptus leucophloia</i> ssp. <i>leucophloia</i> low open woodland over mixed <i>Acacia</i> tall open shrubland over <i>Triodia wiseana</i> hummock grassland on skeletal soils with pebbles, cobbles and small boulders;</p> <p>Stony Plains</p> <p>2) <i>Acacia aneura</i> var. <i>macrocarpa</i> and <i>Acacia pruinocarpa</i> tall shrubland over <i>Triodia pungens</i> hummock grassland over stony soils;</p> <p>3) <i>Acacia synchronicia</i> and <i>Acacia aneura</i> tall shrubland over <i>Eriachne mucronata</i> and <i>Aristida latifolia</i> tussock grassland;</p> <p>4) <i>Acacia synchronicia</i> and <i>Acacia aneura</i> tall shrubland over <i>Eriachne mucronata</i>, <i>Aristida latifolia</i> and <i>Triodia pungens</i> tussock and hummock grassland;</p>	<p>Holcim Australia Pty Ltd are seeking a Purpose Permit to clear up to 9.934 hectares of native vegetation within an application area of approximately 12 hectares. The application area is located approximately five kilometres north-west of Newman Town within mining lease M52/59. Clearing is required for the purpose of mineral production, which will involve hard rock quarry mining and associated activities including stockpiling, crushing and screening (Holcim, 2009).</p> <p>Vegetation will be cleared with machinery, mulched and incorporated into topsoil to be stored for rehabilitation purposes (Holcim, 2009).</p>	<p>Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).</p>	<p>The vegetation descriptions were derived from descriptions by Animal Plant Mineral Pty Ltd (APM, 2009).</p> <p>The original clearing permit application was for 9.934 hectares within an area of approximately 12 hectares. The assessing officer discussed with Holcim Australia Pty Ltd that any previously cleared areas need be excised from the application area. In response Holcim Australia Pty Ltd removed 2.252 hectares of previously cleared land from the application area boundary reducing the proposed clearing footprint to 9.748 hectares.</p>

5) *Senna glaucifolia* low open shrubland over *Triodia pungens* hummock grassland on gravelly silty clay;

Hardpan Plains

6) *Acacia aneura* var. *macrocarpa* and *Acacia pruinocarpa* tall shrubland over mixed tussock grassland on silty clay soils;

Disturbed Land

7) Significantly disturbed vegetation.

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 areas are located on the eastern fringe of the Hamersley subregion of the Interim Biogeographic Regionalisation for Australia (IBRA) Pilbara Bioregion (GIS Database; APM, 2009).

Animal Plant Mineral Pty Ltd (APM) (APM, 2009) conducted a flora and fauna survey over the application areas in October 2009. From these surveys an estimation of the biological diversity of the application areas has been made.

APM (2009) have identified and described seven vegetation types as occurring within the application areas and recorded a total of 40 flora species, from 17 genera belonging to 12 families as occurring within the survey area. No Declared Rare Flora (DRF) or Priority Flora species were identified within the application areas (APM, 2009). Weeds, particularly *Cenchrus ciliaris*, are prevalent in the landscape and, on more than one occasion, represented the dominant flora taxa in a flora survey quadrat (APM, 2009).

According to APM (2009), the survey area epitomises the poor condition typical of the native vegetation around Newman. The combined effect of weeds, bushfires and grazing is exacerbated by disturbance from vehicles and dust blowing across the site from the Holcim quarry and the nearby Mt Whaleback mine (APM, 2009). More than 70 % of the survey area is completely cleared and developed, with the remaining area being significantly disturbed and retaining little, if any, vegetation or fauna conservation value (APM, 2009).

Three fauna habitat types were recorded within the application areas. These being: Hills and Low Rises; Stony Plains; and Hardpan Plains (APM, 2009). There were no fauna habitats of regional or local significance within the application areas. Six Threatened and Priority Fauna species have been recorded within a 20 kilometre radius of the application areas; however the landforms and vegetation types present within the application areas do not represent core habitat for any of these species.

The level of biodiversity within the application areas are very low, with the majority of the site being structurally very simple (APM, 2009). Notwithstanding the high level of disturbance to the site, the area would not support a very diverse flora, vegetation or fauna assemblage (APM, 2009).

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

Methodology APM (2009)
GIS Database:
-IBRA WA (Regions - Sub Regions)

(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**

According to available GIS datasets, there are no known records of threatened fauna within the application area (GIS Database).

Three broad terrestrial fauna habitat types have been described within the application area (APM, 2009). These are:

- Hills and Low Rises: Hills to 15 metres, covered in pebbles or cobbles, over stony soils and red shallow loams. They comprise hummock grasslands of *Triodia wiseana* or very scattered shrublands of *Acacia* and *Senna* spp.
- Stony Plains: Level to gently undulating plains of pebbles over red/brown non-cracking clays. Very scattered to scattered mixed height shrublands with *Acacia aneura* among other acacias, *Senna* and *Eremophila*. Patchy hard *Triodia* occurs.

- Hardpan Plains: Level plains subject to sheet flow with small abundant ironstone pebbles on red loamy earths with scattered tall shrublands of various acacias.

The assessing officer has conducted a search of the Western Australian Museum's online fauna database, centred on the coordinate 23°19'12"S, 119°41'51"E, with a radius of 40 kilometres. Six Amphibian, 96 Avian, 34 Mammalian and 92 Reptilian species have been identified as potentially occurring within the search area (Western Australian Museum, 2010). Animal Plant Mineral Pty Ltd (APM) (APM, 2009) conducted a Level 1 fauna field survey in October, 2009. APM also conducted a desktop search of the Department of Environment and Conservation's (DEC) Threatened Species Branch and the Western Australian Herbarium databases over the application area with a 40 kilometre radius. Listed below are the Schedule and Priority fauna that could potentially utilise the application area:

Schedule 1 - Fauna that is rare or likely to become extinct, Wildlife Conservation (Specially Protected Fauna) Notice, 2008: *Liasis olivaceus barroni* (Pilbara Olive Python) - Vulnerable;

P1 - DEC Priority Fauna List: *Ramphotyphlops ganei*

P4 - DEC Priority Fauna List: *Ardeotis australis* (Australian Bustard); *Macroderma gigas* (Ghost Bat); *Pseudomys chapmani* (Western Pebble Mound Mouse); and *Sminthopsis longicaudata*.

An assessment of each of the above species has found that habitat was largely inadequate within the application area due to its disturbed nature and lack of optimal habitat (APM, 2009).

Although many species of fauna are likely to utilise the habitats above, none of these habitat types are specifically restricted to the application area. There are no habitats within the application area that are poorly represented in the local area or region (APM, 2009). There are also no caves, springs, gilgai plains or major watercourses within the proposed clearing area (APM, 2009). Therefore, it is unlikely that the native vegetation of the application area would constitute significant habitat for fauna indigenous to Western Australia.

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

Methodology APM (2009)
Western Australian Museum (2010)
GIS Database:
-Threatened Fauna

(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 datasets, there are no known Declared Rare Flora (DRF) or Priority Flora within the application area (GIS Database).

Animal Plant Mineral Pty Ltd (APM, 2009) conducted a level 2 flora and vegetation survey of the application area in October, 2009. No species of DRF, Priority Flora or Environmental Protection and Biodiversity Conservation (EPBC) Act, 1999 listed threatened flora were recorded within the application area (APM, 2009).

The DRF listed species *Lepidium catapycnon* has been recorded in the nearby Mt Whaleback Area during previous flora surveys (APM, 2009). *Lepidium catapycnon* occurs on skeletal soils on hillsides and stony slopes, in hummock grassland with an over-storey of Snappy Gum and *Acacia* species (APM, 2009; Brown et al., 1998). The only hillsides and stony slopes present within the application area and surrounding vegetation are immediately adjacent to an existing quarry where there is significant existing disturbance from vehicle use and dust (APM, 2009). *Lepidium catapycnon* was not expected to be found within the survey area due to the timing of the flora and vegetation survey; however, due to the degraded nature of its preferred habitat, it is considered unlikely to occur within the application area (APM, 2009).

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

Methodology APM (2009)
Brown et al. (1998)
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 (TEC's) within the application area (GIS Database). The nearest known TEC is the Ethel Gorge aquifer stygobiont community which is located approximately 15 kilometres east of the application area (GIS Database).

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

Methodology GIS Database:
-Threatened Ecological 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 is located within the Pilbara Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Shepherd (2007) report that approximately 99.95% of the pre-European vegetation still exists in the Pilbara Bioregion. The vegetation in the application area is broadly mapped as Beard Vegetation Associations 82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana* (GIS Database; Kendrick, 2001). According to Shepherd (2007) there is approximately 100% of this vegetation type remaining in the Pilbara Bioregion and the State (see table below).

According to the Bioregional Conservation Status of Ecological Vegetation Classes the conservation status for the Pilbara Bioregion and Beard Vegetation Association 82 is of 'Least Concern' (Department of Natural Resources and Environment, 2002).

Although several large scale mining operations are located within a 50 kilometre radius of the application area, the Pilbara Bioregion remains largely uncleared (GIS Database). As a result, the conservation of the vegetation associations within the bioregion is not likely to be impacted upon by the proposal.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,188	17,794,647	~99.95	Least Concern	6.32
Beard veg assoc. – State					
82	2,565,901	2,565,901	~100	Least Concern	10.2
Beard veg assoc. – Bioregion					
82	2,563,583	2,563,583	~100	Least Concern	10.2

* 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)
Kendrick (2001)
Shepherd (2007)
GIS Database:
-Interim Biogeographic Regionalisation of Australia
-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

According to available databases there are no permanent wetlands or watercourses within the application area (GIS Database). One minor non-perennial drainage line occurs within the application area.

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

The drainage lines present within the application area are dry for most of the year, only flowing briefly immediately following significant rainfall (ANRA, 2007). Small non-perennial drainage lines and the vegetation associated with them are common within the Pilbara bioregion (ANRA, 2007).

Methodology ANRA (2007)
GIS Database:
-Hydrography, Linear

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

Comments Proposal is not likely to be at variance to this Principle

According to the Department of Agriculture's Technical Bulletin No. 92 "An inventory and condition survey of the rangelands of the Pilbara region, Western Australia", the application area is comprised of the Elimunna Land System (GIS Database; Van Vreeswyk et al., 2004).

The Elimunna Land System is described as stony plains on basalt supporting sparse acacia and cassia shrublands and patchy tussock grasslands (Van Vreeswyk et al., 2004). An analysis of aerial photography for the application area reveals it is most likely to occur on the landform unit's stony plains and hardpan plains. Most of the Elimunna Land System is inherently resistant to erosion (Van Vreeswyk et al., 2004).

According to Animal Plant Mineral Pty Ltd (APM, 2009) the application area is already highly degraded. The topographic setting of the application area dictates that secondary disturbances should be easily contained within the survey lease area (APM, 2009).

Strategen Environmental Consultants Pty Ltd (2009) on behalf of Holcim Australia Pty Ltd has advised that surface water runoff within the application area will be locally concentrated by diversion structures and that sediment traps will be used to reduce sediment loads and velocities in local surface water runoff.

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

Methodology APM (2009)
Strategen Environmental Consultants Pty Ltd (2009)
Van Vreeswyk et al. (2004)
GIS Database:
-Rangeland Land System Mapping

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

Comments Proposal is not likely to be at variance to this Principle

There are no conservation areas in the vicinity of the application area. The nearest Department of Environment and Conservation (DEC) managed land is the Karijini National Park, approximately 115 kilometres west, north-west of the application area (GIS Database).

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

Methodology GIS Database:
-DEC Tenure

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

Comments Proposal is not likely to be at variance to this Principle

There are no permanent watercourses or wetlands within the application area (GIS Database). Surface water in the area only flows following significant rainfall events (ANRA, 2007). Considering the size and the location of the area under application, it is not likely that clearing of native vegetation will cause or exacerbate the incidence of flooding (DoW, 2010).

The application area is located within the Newman Water Reserve, which has been gazetted under the Country Areas Water Supply Act 1947 (CAWS). The area has been assigned as Priority 1 (P1) under the Water Sources Protection System. Clearing activities for mineral production are compatible with conditions in a P1 Public Drinking Water Source Area (DoW, 2010).

Advice received from the Department of Water (DoW) on 5 January 2010 states the following; "The DoW is satisfied that the proposed clearing of 9.934 (hectares) is unlikely to have a significant impact on the quality or quantity of groundwater."

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

Methodology ANRA (2007)
DoW (2010)
GIS Database:
-Hydrography, Linear

(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 not associated with any permanent wetlands or watercourses (GIS Database).

The proposed clearing area is located within the Pilbara region of Western Australia (GIS Database). This region is subject to an arid climate with two distinct seasons, a hot summer (October - April) and a mild winter (May - September) (BoM, 2010). The nearby Newman town site has an average annual rainfall of 310.2 millimetres per year (BoM, 2010). Intense rainfall events generally associated with cyclonic activity during the summer months are known to occur in the area, and these often result in localised flooding (BoM, 2010)

The application area experiences a high annual evaporation rate of approximately 3,600 millimetres (GIS Database). Given the low level of annual rainfall in relation to the high evaporation rate, it is likely that any water that collects and pools during heavy rainfall periods will evaporate quickly.

The Department of Water (DoW, 2010) has advised that considering the size and location of the area under application, it is not likely that the clearing of native vegetation will cause or exacerbate the incidence of flooding.

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

Methodology BoM (2010)
DoW (2010)
GIS Database:
-Evaporation Isopleths
-Hydrography, Linear
-IBRA WA (Regions - Subregions)

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

Comments

There is one native title claim over the application area (GIS Database). This claim (WC99-004) has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenement has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (ie. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no known 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 Sites of Aboriginal Significance are damaged through the clearing process.

No submissions were received raising objections to this proposal.

It is the proponent's responsibility to liaise with the Department of Environment and Conservation and the Department of Water, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

The original clearing permit application was for 9.934 hectares within an area of approximately 12 hectares. The assessing officer discussed with Holcim Australia Pty Ltd that any previously cleared areas need be excised from the application area. In response Holcim Australia Pty Ltd removed 2.252 hectares of previously cleared land from the application area boundary reducing the proposed clearing footprint to 9.748 hectares.

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 proposed clearing 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 a clearing permit be granted, it is recommended that conditions be imposed on the permit for the purposes of weed management, retention of topsoil and vegetative material, record keeping and permit reporting.

5. References

ANRA (2007) Australian Natural Resources Atlas: Rangelands Overview; Pilbara. Available online from:

- <http://www.anra.gov.au/topics/rangelands/index.html> Accessed 24 January 2010.
- APM (2009) Holcim Newman: Level 1 Flora and Fauna Biological Assessment Survey. Prepared by Animal Plant Mineral Pty Ltd for Holcim Pty Ltd, 2009.
- BoM (2010) Bureau of Meteorology. Climate statistics for Australian locations, Summary statistics for NEWMAN. Available online from: http://www.bom.gov.au/climate/averages/tables/cw_007151.shtml Accessed 24 January 2010.
- Brown, A. Thomson-Dans, C. and Marchant, N.J. (Eds) (1998), Western Australia's Threatened Flora, Department of Conservation & Land Management, Western Australia.
- 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 (2010) Public Drinking Water Source Area (PDWSA) Advice. Advice to the Assessing Officer, Native Vegetation Assessment Branch, Department of Mines and Petroleum (DMP). Department of Water, Western Australia.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Kendrick, P. (2001) Pilbara (PIL3 - Hamersley subregion). In a Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Department of Conservation and Land Management, pp 568-580.
- 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.
- Strategen Environmental Consultants Pty Ltd (2009) Holcim Newman Quarry - Application for clearing permit within mining lease M52/59. Prepared for Holcim Pty Ltd, November 2009.
- 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.
- Western Australian Museum (2010) Naturemap - Mapping Western Australia's Biodiversity - Department of Environment and Conservation. Available online from: <http://naturemap.dec.wa.gov.au/default.aspx> Accessed 28 January 2010.

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.
DMP	Department of Mines and Petroleum, 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.