



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 5783/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Hamersley Iron Pty Ltd

1.3. Property details

Property: Iron Ore (Hamersley Range) Agreement Act 1963, Lease 827584, Lease Extension 1213357, Lot 30 on Deposited Plan 241590
Local Government Area: Shire of Ashburton
Colloquial name: Paraburdoo Town Feeder One Line Replacement

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
4		Mechanical Removal	Powerline removal and construction, and the provision of access tracks.

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 3 October 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):

181: Shrublands; mulga and snakewood scrub; and
567: Hummock grasslands, shrub steppe; mulga and kanji over soft spinifex and *Triodia basedowii*

A flora and vegetation survey was conducted within the application area by Rio Tinto on 20- 24 March 2012 (Rio Tinto, 2012). Two vegetation communities were identified within the application area:

S1. Scattered tall shrubs of *Acacia fuscanaura* over scattered shrubs of *Eremophila cuneifolia* and *Acacia tetragonophylla* over scattered low shrubs of *Ptilotus obovatus* var. *obovatus*

D1. Scattered low trees of *Acacia citrinoviridis* over tall open shrubland of *Acacia citrinoviridis* and *Acacia tetragonophylla* over scattered low shrubs of *Ptilotus obovatus* var. *obovatus* over open tussock grassland of *Cenchrus ciliaris*.

Clearing Description Paraburdoo Town Feeder One Line Replacement. Hamersley Iron Pty Ltd has applied to clear up to 4 hectares of native vegetation within a total boundary of approximately 7.9 hectares, for the purpose of construction of a new power line and the provision of access tracks to this area. The proposed clearing is located approximately 600 metres north of Paraburdoo, in the Shire of Ashburton.

Vegetation Condition Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994)

to

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

Comment The vegetation condition was determined by Rio Tinto (2012). The vegetation conditions were described using a scale based on Trudgen (1988) and have been converted to the corresponding conditions from the Keighery (1994) scale. Existing tracks and infrastructure have impacted vegetation in many parts of the application area (Rio Tinto, 2012).

Vegetation will be cleared by dozers. Topsoil and vegetative material will be stockpiled for use in rehabilitation.

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**

Rio Tinto completed a flora and vegetation assessment over the Paraburdoo Town Feeder One Line Replacement (TFOR) area in March 2012 (Rio Tinto, 2012). No systematic survey was undertaken, and fauna survey consisted of a desktop study. Fauna habitats were noted during field observations. In July 2011, Ecologia undertook a baseline vertebrate fauna survey of the Paraburdoo mine site, located approximately 4.3 kilometres south west of the proposed clearing (Ecologia, 2012). However, much of the area surveyed by Ecologia was within a different vegetation type to that present within the application area (Rio Tinto, 2012; GIS Database).

The application is located within the Pilbara (PIL) Interim Biogeographic Regionalisation of Australia (IBRA) region and the Hamersley (PIL3) subregion (GIS Database). The Pilbara region represents a transitional zone between semi-arid and tropical climates (Kendrick, 2001). The Hamersley IBRA subregion comprises Proterozoic ranges, plateaus, and gorges of basalt, shale and dolerite (Kendrick, 2001). Vegetation associated with the Hamersley subregion includes low mulga (*Acacia aneura*) woodland over bunch grasses on fine soils, and (within ranges) Snappy Gum *Eucalyptus leucophloia* over spinifex grassland (*Triodia brizoides*) on skeletal soils (Kendrick, 2001; Rio Tinto, 2012). The Hamersley Range also contains biologically important assets such as refugial ecosystems in gorges, waterfalls and mountaintop 'sky islands', which contain a high level of floristic, vertebrate and invertebrate species richness (Kendrick 2001).

The vegetation within the application area is mapped as belonging to Beard associations 181 and 567. Rio Tinto (2012) also described two vegetation communities present, including:

S1: Scattered tall shrubs of *Acacia fuscaneura* over scattered shrubs of *Eremophila cuneifolia*, and *Acacia tetragonophylla* over scattered low shrubs of *Ptilotus obovatus* var. *obovatus*. This vegetation unit comprised the majority of the application area, and was found on undulating slopes (Rio Tinto, 2012). Approximately 60% of the area covered by this community was disturbed (Rio Tinto, 2012).

D1. Scattered low trees of *Acacia citrinoviridis* over tall open shrubland of *Acacia citrinoviridis*, and *Acacia tetragonophylla* over scattered low shrubs of *Ptilotus obovatus* var. *obovatus*, over open tussock grassland of *Cenchrus ciliaris* (Rio Tinto, 2012). This comprised only a small proportion of the vegetation and followed flow lines (Rio Tinto, 2012).

There are no Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) within the application area (GIS Database). The nearest TEC is the Themeda Grasslands TEC, known to occur throughout the Hamersley subregion (Kendrick, 2001; Rio Tinto, 2012). The nearest Themeda Grasslands according to available databases lies approximately 92 kilometres north of the application area (GIS Database); however Rio Tinto (2012) report a further Themeda Grassland as close as 70 kilometres north of the application area. The nearest PEC is 91 kilometres east, north east and is the Brockman Iron cracking clay community (GIS Database).

A total of 57 taxa from 28 genera and 16 families were recorded within the application area (Rio Tinto, 2012). The most speciose family within the application area was Fabaceae (17 taxa), followed by Amaranthaceae (10 taxa) (Rio Tinto, 2012). This is close to the 73 taxa recorded by Pilbara Iron (2004) from a nearby area approximately four times the size (Rio Tinto, 2012). No species of Priority or Threatened flora were found within application area during the flora and vegetation assessment by Rio Tinto (2012), which was concurrent with available databases (GIS Database). The NatureMap (DEC, 2013) database shows one record of Threatened flora and 11 records of Priority flora within a 20 kilometre radius of the application area.

According to NatureMap (DEC, 2013), 19 mammal, 86 avian, 51 reptile, two amphibian and five invertebrate species have been recorded within a 20 kilometre buffer around the application area. Ecologia (2012) recorded ten mammals (including two introduced species), 41 birds, and eight reptiles during their survey. An additional species, the Pilbara Olive Python (*Liasis olivacea pilb.*) was reported to survey staff by sources on site (Ecologia, 2012). A database search and review of previous surveys in the area compiled a list of 284 terrestrial vertebrate fauna species that had the potential to occur in the area (Ecologia, 2012).

Three conservation significant fauna species were recorded by Ecologia (2012) during their nearby fauna survey, including the Pilbara Olive Python (*Liasis olivaceus subsp. Barroni*), Vulnerable (EPBC Act 1999), Schedule 1 (*Wildlife Conservation Act 1950*); Rainbow Bee eater (*Merops ornatus*), Migratory (EPBC Act 1999); and Star Finch (*Neochmia ruficauda*), Priority 4 (*Wildlife Conservation Act 1950*). According to the fauna habitat types present within the application area, the Western Pebble-mound Mouse (*Pseudomys chapmani*) (Priority 4) was identified to probably occur (Rio Tinto, 2012), and the Northern Quoll (*Dasyurus hallucatus*) (Schedule 1) has been recorded previously from within the Paraburdoo town site according to the

NatureMap database (DEC, 2013; Rio Tinto, 2012).

The vegetation condition within the application area ranges from very good to degraded (Keighery, 1994), and approximately one hectare within the application area has already been cleared through the provision of tracks (Rio Tinto, 2012). Five introduced flora species were recorded within the application area, including Buffel Grass (*Cenchrus ciliaris*); a serious environmental weed (Rio Tinto, 2012). As increased clearing activity within the application area is likely to facilitate further weed invasion, potential impacts to biodiversity may be minimised by the implementation of a weed management condition.

Due to the small area proposed to be cleared, and the disturbed nature of the application area, it is unlikely that the proposed clearing represents an area of high biodiversity on either a local or regional scale.

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

Methodology DEC (2013)
Ecologia (2012)
Keighery (1994)
Kendrick (2001)
Rio Tinto (2012)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Pre-European Vegetation
- Threatened and Priority Flora
- Threatened Ecological Sites Buffered
- Threatened fauna (DECLIST)

(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 flora and vegetation assessment conducted by Rio Tinto (2012) identified two fauna habitats, recorded as 'hill slope' and 'minor drainage line'. No significant fauna habitats such as caves, rock outcrops, termite mounds, sandy banks, or significant tree hollows were observed. These fauna habitats are considered to be well represented on both a local and regional scale (Rio Tinto, 2012)

Habitat suitability for short range endemic (SRE) species was not assessed, but within the application area there are no sheltered or microhabitats, isolate habitat, or important drainage lines which are known to be particularly suitable for SRE species (EPA, 2009; Rio Tinto, 2012).

The habitat present is suitable for the Western Pebble-mound Mouse (*Pseudomys chapmani*; Priority 4), especially in areas which comprise shrubland over spinifex (Rio Tinto, 2012). However, spinifex cover within the application area is small, and this habitat is common throughout the region in better condition (Rio Tinto, 2012). As such, the proposed clearing may not influence the conservation status of this species.

The Northern Quoll (*Dasyurus hallucatus*) is listed as a Schedule 1 species under the *Wildlife Conservation Act 1950*, and Endangered under the *EPBC Act 1999*. This species is a habitat generalist, known to den in rock crevices, caves, tree hollows and logs, and has been recorded in variety of habitats including rock mesas, plateaus, slopes, spinifex grasslands, dolomite hills and ridges, shrublands and clay pans (Woinarski, 2005; SEWPAC, 2013). There is a record of a Northern Quoll within the town site of Paraburdoo from NatureMap (DEC, 2013; GIS Database), and there is therefore the possibility that this species inhabits the area. However, due to the availability of more suitable habitat outside the application area, and the absence of den microhabitats within the application area, it is unlikely that habitat within the application area is significant for the local persistence of this species.

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

Methodology DEC (2013)
EPA (2009)
Rio Tinto (2012)
SEWPAC (2013)
Woinarski (2005)
GIS Database:
- Threatened fauna (DECLIST)

(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 NatureMap (DEC, 2013), one Threatened flora species has been recorded within a 20 kilometre buffer of the proposed clearing. Following the flora and vegetation assessment on 20- 24 March 2012 by Rio Tinto (2012), no Threatened flora species were identified within the application area. This is supported by

available databases (GIS Database). Furthermore, the habitat present was not considered suitable for most potentially occurring conservation significant flora (Rio Tinto, 2012).

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

Methodology DEC (2013)
Rio Tinto (2012)
GIS Database:
- Threatened and Priority Flora

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

Comments **Proposal is not likely to be at variance to this Principle**
There are no TECs or PECs within the application area (GIS Database). The nearest TEC is the Themeda Grasslands TEC, 92 kilometres north of the application area (GIS Database). The nearest PEC is 91 kilometres east, north east and is the Brockman Iron cracking clay community (GIS Database).

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

Methodology Rio Tinto (2012)
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 Interim 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 within the application area has been mapped as Beard vegetation associations 181 and 576 (GIS Database). Over 90% of these Beard vegetation associations remain at both a state and bioregional level (Government of Western Australia, 2013). Therefore, the area proposed to be cleared does not represent a significant remnant of native vegetation within an area that has been extensively cleared. Based on aerial imagery, the vegetation within the application area is neither a remnant itself nor does it form part of any remnants within the local area (GIS Database).

Table: remaining quantity of pre-European vegetation associations 181 and 567

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DEC Managed Lands
IBRA Bioregion – Pilbara	17,808,657	17,733,584	~99.6	Least Concern	8.4
Beard veg assoc. – State					
181	1697291.34	1695240.73	~99.9	Least Concern	16.3
567	777506.85	774895.91	~99.7	Least Concern	22.5
Beard veg assoc. – Bioregion					
181	65,090.44	63,204.50	~97.1	Least Concern	4.9
567	776,823.96	774,213.03	~99.7	Least Concern	22.5

* 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
- Paraburdoo 50cm Orthomosaic - Landgate 2004

(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 not likely to be at variance to this Principle

No watercourses occur within the application area according to available databases (GIS Database). The application area is surrounded by a number of minor, non-perennial watercourses, but the proposed clearing is not expected to disturb these (Rio Tinto, 2012).

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

Methodology Rio Tinto (2012)
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

The application area occurs just within the Marandoo land system (GIS Database). The Mandarool land system consists of erosional hills and ridges, with steep to gently inclined slopes and stony interfluvial channels (Van Vreeswyk et al., 2004). Little to no soil erosion is present within this land system, and it contains soil types that are considered resistant to erosive impacts (Rio Tinto, 2012; Van Vreeswyk et al., 2004). According to Rio Tinto (2012), erosion is not evident in the pre-existing cleared portions within the application area.

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

Methodology Rio Tinto (2012)
Van Vreeswyk et al. (2004)
GIS Database:
- Hydrography, linear
- 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 of the Department of Parks and Wildlife managed lands (GIS Database). The nearest conservation area is the Karijini National Park, which is a Class A Nature Reserve (GIS Database). It is located approximately 32.7 kilometres east of the application area (GIS Database). From this distance, the proposed clearing is not likely to impact the environmental values of the proposed conservation area.

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

Methodology GIS Database:
- DEC Tenure

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

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

The application area does not occur within a Public Drinking Water Source Area (PDWSA), however it is located within the proclaimed Pilbara groundwater area under the *Rights in Water and Irrigation Act 1914* (GIS Database). Any groundwater extraction and/or taking or diversion of surface water for the purposes other than domestic and/or stock watering is subject to licence by the Department of Water. It is not located upon any permanent wetlands or watercourses (GIS Database). It does, however, share a boundary with the River land system, and is adjacent to a number of minor, non-perennial watercourses associated with Seven Mile Creek (GIS Database). Significant sedimentation of this watercourse is not expected to occur as a result of clearing activities (Rio Tinto, 2012).

Groundwater salinity in the local area is estimated to be between 500 – 1,000 milligrams/Litre Total Dissolved Solids (TDS), which is considered marginal (GIS Database). The proposed clearing activity is not likely to significantly alter salinity levels within the application area.

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

Methodology Rio Tinto (2012)
GIS Database:
- Groundwater Salinity, Statewide

- 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 is not likely to be at variance to this Principle

Mean annual rainfall in the Shire of Ashburton is estimated at 313.6 millimetres (BoM, 2013). As the annual evaporation rate is approximately 3,500 millimetres, there is not likely to be substantial or widespread surface flow during normal seasonal rains (GIS Database).

The application area falls within the Ashburton River catchment area (GIS Database). Given the size of the application area (four hectares) compared to the size of the catchment area (7,877,743 hectares) (GIS Database), the proposed clearing is not likely to increase the potential for flooding in this region.

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

- Methodology** BoM (2013)
GIS Database:
- Evaporation Isopleths
- Hydrographic Catchments - Catchments

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

Comments

There is one native title claim over the area under application (GIS Database). This claim (WC2010/16) has been registered with the Native Title Tribunal on behalf of the claimant group (GIS Database). However, 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 are two registered Aboriginal Sites of Significance within the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

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

The clearing permit application was advertised on 9 September 2013 by the Department of Mines and Petroleum inviting submissions from the public. There were no submissions received.

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

4. References

- Australian Government Bureau of Meteorology (BoM) (2013) Climate Statistics for Australian Locations. A Search for Climate Statistics for Paraburdoo, BoM, http://www.bom.gov.au/climate/averages/tables/cw_007185.shtml, viewed September 2013.
- Department of Environment and Conservation (DEC) (2013) NatureMap: Mapping Western Australia's Biodiversity, DEC, <http://naturemap.dec.wa.gov.au/default.aspx>, viewed September 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.
- Ecologia (2012) Rio Tinto Paraburdoo Mine Area Botanical and Vertebrate Fauna Survey. Report Prepared by Ecologia Environment, May 2012.
- Environmental Protection Authority (EPA) (2009) Sampling of short range endemic invertebrate fauna for environmental impact assessment in Western Australia. Guidance Statement No. 20. EPA, 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.
- 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 3 (PIL1 – Hamersley Subregion). In A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002 (eds J. E. May & N. L. McKenzie). Department of Conservation and Land Management, WA.
- Rio Tinto (2012) Flora and Vegetation Assessment of the Turee Creek Water Pipeline Upgrade and Paraburdoo Town Feeder One Line Replacement. Report prepared by Rio Tinto, June 2012.

Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) (2013) *Dasyurus hallucatus* in Species Profile and Threats Database, SEWPaC, Canberra. <http://www.environment.gov.au/sprat>, viewed September 2013.

Van Vreeswyk, A.M.E, Payne, A.L., Leighton, K.A., and Hennig, P. (2004) An inventory and condition survey of the Pilbara region, Western Australia, Department of Agriculture Technical Bulletin No. 92, December 2004.

Woinarski, J. 2005. Northern Quoll: *Dasyurus hallucatus*. Threatened Species of the Northern Territory.

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.