Government of Western Australia
Department of Mines and Petroleum

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2847/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: **Kundana Gold Pty Limited**

1.3. Property details

Property: Mining Lease 16/72, Mining Lease 16/79 and Mining Lease 16/157
Local Government Area: Shire Of Coolgardie
Colloquial name: Moonbeam Project

1.4. Application

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

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description Beard Vegetation Associations have been mapped at a 1:250,000 scale for the whole of Western Australia. One Beard Vegetation Association has been mapped within the application area (GIS Database; Shepherd et al., 2001).

480: Succulent steppe with open low woodland; mulga & sheoak over salt bush.

The application area was surveyed by Botanica Consulting staff in September 2008 (Botanica Consulting, 2008). The following vegetation types were identified within the application area.

1. *Acacia kalgoorliensis* shrubland: The dominant species is *Acacia kalgoorliensis* over a mid storey comprised of *Casuarina pauper, Alyxia buxifolia, Cratystylis subspinescens, Dodonaea viscosa* ssp. *angustissima* and *Acacia tetragonophylla* over an understorey comprised of *Ptilotus obovatus, Atriplex codonocarpa, A. vesicaria, Maireana georgei, M. tomentose, M. triptera* and *Sclerostegia disarticulata.*

2. *Eucalyptus clelandii* woodland: Dominant species is *Eucalyptus clelandii* over an understorey comprised of *Ptilotus obovatus, Olearia muelleri, Senna artemisioides* ssp *filifolia, Atriplex vesicaria, Maireana pentatropis*, *Cratystylis conocephala, Frankenia setosa, Acacia colletioides, A. masliniana, Eremophila ionantha, E. maculata*, *Solanum orbiculatum* and *Zygophyllum eremaeum*.

3. *Eucalyptus celastroides* ephemeral floodway: Dominated by *Eucalyptus celastroides* ssp. *celastroides* with an understorey comprised of *Senna artemisioides* ssp. *filifolia, Atriplex nummularia, Halosarcia holacnemoides*, *Maireana georgei, M. triptera, Sclerolaena patenticuspis, Eremophila scoparia* and *Dodonaea viscosa* ssp. *angustissima*.

4. Chenopod shrubland: *Maireana pyramidata* and *Muehlenbeckia florulenta* are the dominant species over a mid storey comprised of *Cratystylis subspinescens, Atriplex nummularia* var. *nummularia, Lycium australe, Acacia tetragonophylla* and *Melaleuca laterifolia* over an understorey comprised of *Disphyma crassifolium, Atriplex lindleyi*, *Halosarcia indica, Maireana triptera, Sclerostegia disarticulata, Frankenia setosa* and *Zygophyllum eremaeum*.

5. *Eucalyptus gracilis* thicket: Dense thicket dominated by *Eucalyptus gracilis* over an understorey of *Disphyma crassifolium, Atriplex nummularia, A. semibaccata, Maireana tomentose, M. triptera, Muehlenbeckia adpressa*, *Calandrinia polyandra* and *Melaleuca laterifolia*.

Three species of introduced flora were recorded within the application area: Stinkwort (*Dittrichia graveolens*), Iceplant (*Mesembryanthemum crystallinum*) and Afghan Thistle (*Solanum hystrix*) (Botanica Consulting, 2008).

Clearing Description Kundana Gold Pty Ltd (Kundana Gold) has applied to clear 66.17 hectares within Mining Leases 16/72, 16/97 and 16/157 for the purpose of mineral production (Kundana Gold, 2008).

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

Comment The vegetation condition was derived from a vegetation survey conducted by Botanica Consulting (2008). The

application area has been impacted by previous disturbances such as historic tracks, historic drilling exploration and mining activities (Botanica Consulting, 2008).

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments

Proposal is not likely to be at variance to this Principle

The application area occurs within the Eastern Goldfields (COO3) sub-region of the Coolgardie Bioregion of the Interim Biogeographic Regionalisation of Australia (IBRA) (GIS Database). This sub-region is characterised by sub-dued relief, comprising of gently undulating plains interrupted in the west with low hills and ridges of Archaean greenstones and in the east by a horst of Proterozoic basic granulite (CALM, 2002). The vegetation is of Mallees, Acacia thickets and shrub heaths on sand plains. Diverse Eucalyptus woodlands occur around salt lakes, on ranges and in valleys. Salt lakes support dwarf shrublands of samphire. Woodlands and Dodonaea shrubland occur on basic graninulites of the Fraser Range (CALM, 2002). The vegetation described within the application area (Botanica Consulting, 2008) is typical of the bioregion.

A vegetation survey of the application area identified 57 species of native flora belonging to 34 genera from 22 families (Botanica Consulting, 2008). This is considered to be biologically diverse. Chenopodiaceae (28), Asteraceae (7), Myoporaceae (7) and Myrtaceae (5) families were the most diverse within the survey area (Botanica Consulting, 2008). This is typical of the floristics of the Eastern Goldfields IBRA sub-region (CALM, 2002).

Three introduced species was recorded during the survey (Botanica Consulting, 2008). These species are not listed as 'Declared Plant' species under the *Agriculture and Related Resources Protection Act 1976* by the Department of Agriculture and Food (DAFWA). Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. This in turn can lead to greater rates of infestation and further loss of biodiversity if the area is subject to repeated fires. It is not expected that the clearing of vegetation will increase the incidence of these weed species within the application area or surrounding vegetation, but should a clearing permit be granted, it is recommended that a condition be imposed for the purposes of weed management.

An area search of the Western Australian Museum's Faunabase conducted by the assessing officer suggests that the application area is diverse in reptile species, particularly Skinks (25) (Western Australian Museum, 2008). The database search found 79 reptile species from 8 families as potentially occurring within the application area, or within a 50 kilometre radius of the application area.

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

Methodology

Botanica Consulting (2008)
CALM (2002)
Western Australian Museum (2008)
GIS Database
- Interim Biogeographic Regionalisation of Australia

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments

Proposal is not likely to be at variance to this Principle

The assessing officer has conducted a search of the Western Australian Museum's online fauna database between the co-ordinates 120.7117°E, 30.2529°S and 121.7682°E, 31.1767°S, representing a 50 kilometre radius around the application area.

This search identified 5 Amphibian, 32 Mammalian, 46 Avian and 79 Reptilian species that may occur within the application area (Western Australian Museum, 2008). Of these, the following species of conservation significance have previously been recorded within the search area: Carpet Python (*Morelia spilota imbricata*), Western Spiny-tailed Skink (*Egernia stokesii badia*), Numbat (*Myrmecobius fasciatus*), Bilby (*Macrotis lagotis*), Central Long-eared Bat (*Nyctophilus timoriensis timoriensis*), Thick-billed Grasswren (*Amytornis textilis*), Crested Bellbird (*Oreoica gutturalis*), White-browed Babbler (*Pomatostomus superciliosus*), Princess Parrot (*Polytelis alexandrae*), Malleefowl (*Leipoa ocellata*), Crested Shrike-tit (*Falcunculus frontatus*) and the Western Rosella (*Platycercus icterotis*).

Keith Lindbeck and Associates (2008) conducted reconnaissance fauna surveys of the application area on 18 September 2008 and 21 November 2008. Keith Lindbeck and Associates (2008) conducted a desktop search of the DEC threatened fauna database to identify species of conservation significance that had been recorded within the area specified. The co-ordinates used were similar to those used by the assessing officer above. In addition to those species listed above, the following fauna species of conservation significance were identified through this database search:

Chuditch (*Dasyurus geoffroii*), Peregrine Falcon (*Falco peregrinus*), Australian Bustard (*Ardeotis australis*),

Hooded Plover (*Charadrius rubricollis*), Rainbow Bee-eater (*Merops ornatus*), Slender Billed Thornbill (*Acanthiza iredalei iredalei*), Shy Heathwren (*Hylacola cauta whitlocki*), *Branchinella denticulata*, *Ogyris subterrestris petrina* and *Jalmenus aridus*.

Based on habitat requirements, the following species are most likely to occur within the application area:

The Numbat (Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*) was formerly widespread across southern semi-arid and arid Australia. Numbats occupy several different habitat types including upland Jarrah forest, open Eucalypt woodland, Banksia woodland and tall closed shrubland, with habitats usually having an abundance of termites in the soil, hollow logs and branches for shelter (DEC, 2008a). It is likely that the application area provides suitable habitat for this species, however given the vegetation types are well represented within the bioregion and the area proposed to clear is small (66.17 hectares) in relation to the size of the sub-region (5,102,428 hectares), it is unlikely that the application area would provide significant habitat for this species.

Malleefowl (Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*) are largely confined to arid and semi-arid woodland that is dominated by mallee eucalypts on sandy soils, with less than 430 millimetres of rainfall annually (DEC, 2008b). However, they can also occur in habitats of Acacia, paperbark, Sheoak and other scrubs, as well as Eucalypt woodland and coastal heaths with an abundant layer of leaf litter for use in nest mounds (Garnett & Crowley, 2000). It is possible that the Malleefowl may inhabit the application area however it is unlikely that the application area would provide significant habitat for this species given the vegetation types are well represented within the bioregion and the area proposed to clear is small (66.17 hectares) in relation to the size of the sub-region (5,102,428 hectares), it is unlikely that the application area would provide significant habitat for this species.

Crested Bellbirds (P4 - DEC Priority Fauna List) inhabit the shrub layer of Eucalypt woodland, mallee, Acacia shrubland, Triodia hummock grassland, saltbush and heath, where they feed on insects and seeds (Environment, 2008a). The Crested Bellbird range has contracted towards the inland in south-western Australia, and it is possible that the mallees present in the application area may provide suitable habitat for this species. Given that the vegetation types are well represented within the bioregion and the area proposed to clear is small (66.17 hectares) in relation to the size of the sub-region (5,102,428 hectares), it is unlikely that the application area would provide significant habitat for this species.

The White-browed Babbler (P4 - DEC Priority Fauna List) lives in Eucalypt forests and woodlands, and forages on and near the ground for insects and seeds (Environment, 2008a). The vegetation within the application area may provide suitable habitat for this species, however given that the vegetation types are well represented throughout the bioregion and the small area proposed to clear (66.17 hectares) in relation to the size of the sub-region (5,102,428 hectares), it is unlikely that the application area would provide significant habitat for this species.

The Carpet Python (P4 - DEC Priority Fauna List) inhabits temperate climatic areas with good winter rains and dry summers and has been recorded from semi-arid coastal and inland habitats, Banksia woodland, Eucalypt woodland and grasslands (DEC, 2008c). The vegetation within the application area may provide suitable habitat for this species, however given that the vegetation types are well represented throughout the bioregion and the small area proposed to clear (66.17 hectares) in relation to the size of the sub-region (5,102,428 hectares), it is unlikely that the application area would provide significant habitat for this species.

The Rainbow Bee-eater (migratory - JAMBA International Agreement) occurs mainly in open forests, woodlands and shrublands, but also occurs in inland and coastal sand dune systems and mangroves in Northern Australia (Western Australian Museum, 2008). This species is an opportunist and is known to inhabit a wide range of habitats (Pizzey & Knight, 1997). This species is likely to occur within the application area, however given that this species does not have a restricted range and the vegetation types that comprise its habitat are well represented throughout the bioregion, it is unlikely that the application area contains significant habitat for this species.

It is acknowledged that the clearing is for a relatively large area (66.17 hectares) and the loss of habitat and fauna displacement are inevitable consequences of clearing activity. This clearing proposal is likely to have localised impacts to fauna species and their associated habitat given the nature of the proposal.

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

Methodology

DEC (2008a)
DEC (2008b)
DEC (2008c)
Environment (2008a)
Garnett & Crowley (2000)
Keith Lindbeck and Associates (2008)
Pizzey & Knight (1997)
Western Australian Museum (2008)

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

Comments

Proposal is not likely to be at variance to this Principle

According to available databases, no Declared Rare Flora (DRF) species occur within the application area (GIS Database). Five separate populations of *Eremophila praecox* (P1) have previously been recorded within approximately 18.52 kilometres of the application area (GIS Database).

A flora survey was conducted over the application area by Botanica Consulting in September 2008 (Botanica Consulting, 2008). This survey involved the area being traversed by two people on foot. Different vegetation groups encountered during the survey were described and the vegetation associations were examined for the presence or absence of any DRF and Priority Flora species (Botanica Consulting, 2008). As a result of this survey no DRF or Priority Flora species were identified as occurring within the application area (Botanica Consulting, 2008).

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

Methodology

Botanica Consulting (2008)
GIS Database
- Declared Rare and Priority Flora List

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

Comments

Proposal is not likely to be at variance to this Principle

A search of available databases reveals that there are no Threatened Ecological Communities (TEC's) within the application area (GIS Database). The nearest TEC is located approximately 151 kilometres to the north-west of the application area (GIS Database).

None of the vegetation types identified by Botanica Consulting (2008) are threatened ecological communities or ecological communities at risk.

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

Methodology

Botanica Consulting (2008)
GIS Database
- Threatened Ecological Communities

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

Comments

Proposal is not at variance to this Principle

The application area falls within the IBRA Coolgardie Bioregion (GIS Database). Shepherd et al. (2001) report that approximately 98.4% of the pre-European vegetation still exists in this Bioregion (see table below). The vegetation in the application area is recorded as Beard Vegetation Association 480: Succulent steppe with open low woodland; mulga & sheoak over salt bush (GIS Database; Shepherd et al., 2001). According to Shepherd et al. (2001) approximately 100% of Beard Vegetation Association 480 remains within the Coolgardie Bioregion.

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

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Coolgardie	12,912,208	12,707,623	~98.4	Least Concern	~9.7
Beard veg assoc. – State					
480	86,099	86,099	~100.00	Least Concern	~0.0
Beard veg assoc. – Bioregion					
480	37,354	37,354	~100.00	Least Concern	~0.0

* Shepherd et al. (2001) updated 2005
** Department of Natural Resources and Environment (2002)

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

Methodology Department of Natural Resources and Environment (2002)
Shepherd et al. (2001)
GIS Database
- Pre-European Vegetation
- Interim Biogeographic Regionalisation for Australia

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

Comments **Proposal is not likely to be at variance to this Principle**
According to available GIS datasets, there are no known watercourses or water bodies within the application area (GIS Database). There is one lake located approximately 0.4 kilometres east, and another approximately 0.9 kilometres west of the application area (GIS Database). Therefore the proposed clearing is unlikely to have any significant impact on any watercourses or wetlands.

The vegetation types identified by Botanica Consulting (2008) are not examples of riparian vegetation.

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

Methodology Botanica Consulting (2008)
GIS Database
- Hydrography - Linear
- Geodata - Lakes

(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 available datasets, there is one soil type (SV15) within the application area (GIS Database). This soil type is described as:

SV15 - Common soils are gypseous and saline loams together with gypseous and saline soils on lake beds (DAFF, 2008).

Schoknecht (2002) describes these soils as being either brown loamy earths or calcareous loamy earths. These have a low risk of wind erodibility and seasonal water logging may occur over the topsoil (Schoknecht, 2002).

Based on the above, the proposed clearing is not likely to be at variance to this Principle. It is recommended that should a permit be granted, a condition be imposed on the permit with regard to stockpiling all cleared topsoil and vegetation for the purposes of rehabilitation.

Methodology DAFF (2008)
Schoknecht (2002)
GIS Database
- Soils - Statewide

(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 is located approximately 14.5 kilometres to the north-west of the Kurrawong Nature Reserve (GIS Database). At this distance it is not likely that the vegetation within the application area provides a buffer to this conservation area, or is an important ecological linkage to this conservation area.

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

Methodology Botanica Consulting (2008)
GIS Database
- CALM Managed Lands and Waters

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

Comments **Proposal is not likely to be at variance to this Principle**
According to available databases, the application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database).

There are no permanent water bodies or watercourses within the application area (GIS Database). The

application area experiences an arid to semi-arid climate with an average annual rainfall of approximately 242 millimetres, falling sometimes in summer but usually during the winter months (CALM, 2002; BOM, 2008). The application area experiences an average annual evaporation rate of approximately 2943 millimetres/year (Luke et al., 1987). Surface water flow is likely to be low during normal seasonal rains. Therefore, during normal rainfall events, surface water within the application area is likely to evaporate or be utilised by vegetation quickly.

The application area is located within the Yilgarn Goldfields Groundwater Province (GIS Database). The groundwater salinity within the application area is approximately >35,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). Vegetation is not likely to be dependent on groundwater at such a hyper saline level. Given the size of the area to be cleared (66.17 hectares) compared to the size of the Yilgarn Goldfields Groundwater Province (29,644,596 hectares) (GIS Database), the proposed clearing is not likely to cause salinity levels within the application area to alter significantly.

There are no known Groundwater Dependent Ecosystems within the application area (GIS Database).

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

Methodology

BOM (2008)
CALM (2002)
Luke et al. (1987)
GIS Database
- Public Drinking Water Source Area
- Hydrography - Linear
- Groundwater - Provinces
- Groundwater Salinity
- Potential Groundwater Dependent Ecosystems

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

Comments

Proposal is not likely to be at variance to this Principle

The application area is located within the Raeside-Ponton Catchment area (GIS Database). The size of the area to be cleared (66.17 hectares) in relation to the size of the Raeside-Ponton Catchment area (11,589,833 hectares) is not likely to lead to an increase in flood height or duration (GIS Database).

Low annual rainfall (approximately 242 millimetres) (BOM, 2008), high evaporation rates (2943 millimetres/year) (Luke et al., 1987) and the absence of water bodies and watercourses in the application area (GIS Database) would suggest that this area is not prone to flooding under normal rainfall conditions.

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

Methodology

BOM (2008)
Luke et al. (1987)
GIS Database
- Hydrographic Catchments - Catchments
- Hydrography - Linear

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

Comments

There are two native title claims (WC99_029 and WC98_027) over the area under application. These claims have been registered with the National Native Title Tribunal on behalf of the claimant group. However, the tenements have been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are several known Aboriginal Sites of Significance within the vicinity of 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.

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.

No public submissions were received in regard to this Permit application.

Methodology

GIS Database
- Aboriginal Sites of Significance
- Native Title Claims

4. Assessor's comments

Comment

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

It is recommended that should a permit be granted, conditions be imposed on the permit with regards to weed management, rehabilitation, recording the areas cleared and reporting.

5. References

Botanica Consulting (2008) Flora and Vegetation survey of the Moonbeam Area (M16/72, M16/97, M16/309 and M16/157). Prepared for Barrick Kanowna. Unpublished Report dated September 2008.

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

DAFF (2008) Department of Agriculture, Fisheries and Forestry - Digital Atlas of Australian Soils. http://www.daff.gov.au/brs/data-tools/daas-download (Accessed 17 December 2008).

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DEC (2008b) NatureBase - Fauna Species Profiles - Malleefowl (*Leipoa ocellata*) www.dec.wa.gov.au/component/option,com_docman/Itemid,/gid,118/task,doc_download/ - (Accessed 29 December 2008).

DEC (2008c) NatureBase - Fauna Species Profiles - Carpet Python (*Morelia spilota imbricata*) www.dec.wa.gov.au/component/option,com_docman/Itemid,/gid,138/task,doc_download/ - (Accessed 29 December 2008).

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Keith Lindbeck and Associates (2008) Barrick Kanowna Level 1 Fauna Survey – Kundana Project – Moonbeam. Prepared for Barrick (Kanowna) Limited. Unpublished Report dated November 2008.

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Western Australian Museum (2008) Faunabase - Western Australian Museum, Queensland Museum and Museum and Art Gallery of NT Collections Databases. http://www.museum.wa.gov.au/ faunabase/_asp_bin/AreaSearchcx.asp?d (Accessed 17 December 2008).

6. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government.
CALM	Department of Conservation and Land Management, Western Australia.
DAFWA	Department of Agriculture and Food, Western Australia.
DA	Department of Agriculture, Western Australia.
DEC	Department of Environment and Conservation
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DoE), Western Australia.
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia.
DoE	Department of Environment, Western Australia.
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.