Department of Industry and Resources

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 975/2

Permit type: Area Permit

1.2. Proponent details

Proponent's name: **St Ives Gold Mining Company Pty Ltd**

1.3. Property details

Property: M15/1630
M15/1542

Local Government Area: Shire Of Coolgardie

Colloquial name: Leviathan Mining Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
71.62		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
Beard vegetation association 936: Medium woodland: Salmon gum (Hopkins et al. 2001; Shepherd et al. 2001) The area proposed to be cleared falls within the Coolgardie Botanical District (Jims Seeds, Weeds & Trees 2005). A flora survey was undertaken by Jims Seeds, Weeds & Trees on 1 and 2 June 2005. One vegetation unit exists within the proposed area for clearing: Open Eucalypt woodland. The dominant species found within this vegetation unit were *Eucalyptus lesouefii and Eucalyptus salubris*. The understorey was comprised of species from the *Acacia*, *Maireana*, *Atriplex* and *Eremophila* genera (Jims Seeds, Weeds & Trees 2005).	The proposed clearing of 71.62 ha is for the development of a waste rock dump. Vegetation will be cleared using blade-up clearing and stockpiled in wind-rows for re-use.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994) to Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)	The area proposed to be cleared surrounds an excavated pit and waste dump. The vegetation within the area has been degraded by historic mining activities and grazing, as a result the biodiversity of the area has been affected (Jims Seeds, Weeds & Trees 2005). Jims Seeds, Weeds & Trees (2005) rate the condition of the vegetation as very good (Keighery 1994). From the site photographs and aerial photographs of the area the vegetation is at least very good to excellent condition with localised areas of degradation adjacent to the mine. Clearing Permit 975/1 for the purpose of constructing waste rock dumps for proposed cutbacks at Leviathan was originally granted on 18 May 2006. The Permit has now been amended (CPS 975/2) to reduce the original area approved to clear of 92.3 hectares to an amended area of 71.62 hectares. The boundary of the original area approved to clear has also been redefined, so that clearing has now been approved on Mining Lease M15/1630 (immediately north of the original approval boundary). Clearing previously approved on Mining Lease M 15/143 (immediately south of the redefined boundary) will no longer be required, and has therefore been removed from the amended clearing permit.

3. Assessment of application against clearing principles

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

Comments

The Leviathan project area contains extensive open pit workings and waste dumps. The proposal to clear native vegetation for the purposes of waste dump construction is unlikely to have a significant biodiversity impact on the area considering the effect historical and current mining as well as pastoral activities have had on the native vegetation (CALM 2006). Jims Seeds, Weeds & Trees (2005) also advise that the level of biological diversity within the proposed area to be cleared has been adversely affected, attributed to a combination of intense

grazing pressure and historic mineral exploration activities. Access tracks are numerous across the area proposed to be cleared, within which the vegetation appears to be quite degraded (GIS database). The vegetation present within the area to be cleared is representative of open *Eucalyptus* woodland which has extensive coverage within the regional area (Payne et al. 1998 as cited in Jims Seeds, Weeds & Trees 2005).

Considering the effects historical mining and pastoral activities have had on the area proposed to be cleared it is unlikely that the biodiversity at the site of this proposal could be considered outstanding or of a higher diversity than in the bioregion, the Shire of Coolgardie or the local area.

The permit amendment is not likely to have any additional impacts upon biodiversity given that the clearance area has been reduced from 92.3 hectares to 71.62 hectares. Furthermore, the clearance area has been redefined to encompass more degraded land immediately adjacent to the existing Leviathan pit.

In consideration of the above, the proposal is not likely to be at variance to this principle.

Methodology

CALM (2006)
GIS Database:
- Threatened Ecological Communities - CALM 12/4/05
- Threatened Fauna - CALM 30/9/05
- Lake Lefroy 1.4m Orthomosaic - DLI 02

Jims Seeds, Weeds & Trees (2005)
Western Wildlife (2006)

(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

Western Wildlife was commissioned to undertake a baseline fauna survey of the St Ives Gold Mine mining tenements in November 2005. A desktop review of Faunabase, CALM's Threatened and Priority Fauna database and the Birds Australia Atlas database, as well as the Environmental Protection and Biodiversity Conservation (EPBC) Protected Matters Search Tool, between the coordinates 31°00' - 32°00' S and 121°00' - 122°00' E, was undertaken by Western Wildlife in order to identify species of conservation significance which are known to occur, or may potentially occur within the proposed project area (Western Wildlife 2006).

The vegetation survey by Jims Seeds, Weeds & Trees (2005) identified the area proposed to be cleared as being open Eucalypt woodland with dominant overstorey species of *Eucalyptus lesouefii* and *Eucalptus salubris*, with an understorey comprised of species from the *Acacia*, *Maireana*, *Atriplex* and *Eremophila* genera. The subsequent fauna survey by Western Wildlife was undertaken at 20 sampling sites which were located across a range of different vegetation types including the vegetation type occurring within the proposed clearing area. Western Wildlife identified six of the sampling sites as Eucalypt woodlands which consisted of the overstorey species *Eucalyptus lesouefii* and *Eucalptus salubris* with a shrubby understorey (Western Wildlife 2006). The vegetation description by Western Wildlife and supporting photographs of three of the sampling sites (3, 7 and 12) show that the vegetation is representative of the vegetation description and photographs of the proposed clearing area provided by Jims Seeds, Weeds & Trees (2005). Jims Seeds, Weeds & Trees have confirmed that the vegetation types surveyed by Western Wildlife correlate with the vegetation type within the area proposed to be cleared (E Reid, Biological Scientist, Jims Seeds, Weeds & Trees, pers. comm., 3 April 2006). The DoIR assessor is satisfied the habitat types surveyed by Western Wildlife in 2005 can be used to determine the likely impacts of the clearing on fauna of conservation significance within the area under application.

During the fauna survey, 2 mammal, 21 reptile and 23 bird species were observed within similar habitat type to that of the project area (Western Wildlife 2005). Species of conservation significance observed during the survey were the Crested Bellbird- Southern (*Oreoica gutteralis gutteralis*; Priority 4) and the Rainbow Bee-eater (*Merops ornatus*), listed as migratory under the *Environment Protection and Biodiversity Conservation Act 1999*, and protected under the *Japan Australia Migratory Bird Agreement* (*JAMBA*).

The Crested Bellbird-Southern favours habitats that contain dense vegetation (Western Wildlife 2006). Jims Seeds, Weeds & Trees (2005) have identified the vegetation within the proposed clearing area as open Eucalypt woodland. The Crested Bellbird-Southern was recorded at 10 of the 20 trapping sites, however, it was not recorded at any of the trapping sites (3, 7 and 12) which are representative of the vegetation type within the proposed clearing area (Western Wildlife 2005). Known threats to this bird include land clearing resulting in habitat fragmentation. The vegetation within the proposed clearing area is widespread through the surrounding Eastern Goldfields, therefore, the proposed clearing is not likely to impact on any potential habitat for this species.

The Rainbow Bee-eater is migratory, moving southwards during spring to breed in southern Australia, with known breeding areas including the Kimberley and south-west (Johnstone and Storr 1998). The Rainbow Bee-eater digs a burrow in sandy banks or dunes in which to lay its eggs, and the burrow is often located in the dirt pushed up alongside tracks (Western Wildlife 2006). Considering the vegetation within the proposed clearing area is widespread throughout the Eastern Goldfields, this proposal is not likely to impact on significant habitat for this species.

Other species observed during the survey are generally widespread within similar vegetation types found throughout the Eastern Goldfields.

As a result of the desktop review, Western Wildlife identified several species of conservation significance which may potentially occur within the project area:

The Malleefowl (*Leipoa ocellata*), which is listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* and under Schedule 1 (Fauna that is rare of is likely to become extinct) of the *WA Wildlife Conservation (Specially Protected Fauna) Notice 2005*. There is a record of an old and degraded Malleefowl mound on Delta Island (approximately 3.8 km north-west of the project area) and an actual sighting of this bird was made in 1995, however, no signs were observed during the November 2005 survey to indicate its continued presence in the area (Western Wildlife 2006). Jims Seeds, Weeds & Trees (2005) have advised that no Malleefowl nesting sites were observed during their flora survey across the proposed area of clearing.

The Peregrine Falcon (*Falco peregrinus*), listed under Schedule 4 (Other specially protected fauna) of the *Wildlife Conservation (Specially Protected Fauna) Notice 2005*, is a wide ranging bird that is likely to occur within the project area. This species has been recorded in the Kambalda and Widgiemooltha area, and it was recorded in the vicinity of the project area by Halpern Glick Maunsell (1998). This species is unlikely to be impacted on by the scale and nature of this clearing.

The Major Mitchell Cockatoo (*Cacatua leadbeateri*), also listed under Schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2005*, was not recorded by Western Wildlife in 2005 but is known to occur in the area (Western Wildlife 2006). Major Mitchell's are known to use large Salmon Gum hollows for nesting. Large hollows (entrance size around 25 cm) suitable for Major Mitchell Cockatoos are likely to start occurring in Salmon Gum trees between 160 and 180 years of age, with most large hollows formed in trees more than 200 years old. Salmon Gums in the eastern part of their range with a diameter at breast height of more than 48cm are estimated to be 180 years old (Rose 1993). Due to the previous cutting of trees in the Eastern Goldfields for use in mines, there are no large Salmon Gums remaining within the application area. The consultant has advised that the only small Salmon Gums present within the application area are as a result of regrowth, and that they are not of suitable age and size to provide habitat for Major Mitchell Cockatoos (J Williams, Botanist, Jims Seeds, Weeds & Trees, pers. comm., 6 April 2006). Considering there are no large existing hollows, the proposed clearing is unlikely to impact on the nesting requirements of Major Mitchell Cockatoos that may occur in the area.

Other bird species of conservation significance which may potentially occur within the project area include the Priority 4 listed Shy Heathwren (*Hylacola cauta whitlocki*) and Crested Shrike-tit (*Falcunculus frontatus*). These birds were not recorded during the survey conducted by Western Wildlife in November 2005 (Western Wildlife 2006). The proposed project area is on the north-eastern and northern edge of the range of these bird species respectively. The Shy Heathwren is generally uncommon and patchily distributed in this area (Johnstone & Storr 1998). The Crested Shrike-tit generally inhabits open forests and woodlands like that found in the proposed area (Western Wildlife 2006). Due the widespread representation of similar vegetation types throughout the Eastern Goldfields, it is unlikely that the proposed clearing will impact on these species.

The Chuditch (*Dasyurus geoffroii*), which is listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* and under Schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2005*, may potentially occur within the project area. Although the occurrence of this species is unlikely, there is a recent confirmed record of the Chuditch from the Widgiemooltha area within the last 18 months (Western Wildlife 2006).

The Carpet Python (*Morelia spilota imbricata*), listed under Schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2005* was recorded amongst rocks on the shore of Lake Cowan, located approximately 40 km south of the project area (Western Wildlife 2006). Similar habitat extends from Lake Cowan to the project area, therefore, the Carpet Python may be found within the proposed area. However, considering the extensive area of suitable habitat, this proposal is not likely to affect this species.

Considering that the open eucalypt woodland of the project area is quite degraded due to historic mining activities and high levels of grazing, and that the vegetation within the proposed area has an extensive distribution throughout the Eastern Goldfields region (Jims Seeds, Weeds & Trees 2005), this proposal is not likely to compromise significant habitat important for the conservation of threatened fauna.(CALM 2006).

The permit amendment is not likely to have any additional impacts upon fauna given that the clearance area has been reduced from 92.3 hectares to 71.62 hectares. Furthermore, the clearance area has been redefined to encompass more degraded land immediately adjacent to the existing Leviathan pit.

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

Methodology

CALM (2006)
HGM (1998)
Jims Seeds, Weeds & Trees (2005)

Johnstone and Storr (1998)
Ninox (2004)
Rose (1993)
Western Wildlife (2006)

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

Comments

According to CALM datasets, there are no known records of Declared Rare Flora (DRF) or Priority flora species within the proposed area of clearing (GIS database).

Jims Seeds, Weeds & Trees (2005) conducted a combined search of CALM's Declared Rare and Priority Flora database and the Western Australian Herbarium database to identify species recorded within the known coordinates of the survey area (GDA94 51 J E 350000 N 6400000 and 51 J E 410000 N 6560000). These significant flora species were examined on the Western Australian Herbarium's database prior to the flora and vegetation survey which was conducted by Jims Seeds, Weeds & Trees on 1 and 2 June 2005.

No Declared Rare Flora (DRF) or Priority flora species were observed during the survey (Jims Seeds, Weeds & Trees 2005). Previous surveys have recorded only one Declared Rare Flora species within the vicinity of Lake Lefroy; *Pityrodia scabra*. This species is currently under taxonomical review, as studies have suggested that *Pityrodia scabra* identified on St Ives Gold Mine tenements is *Pityrodia sp. Yilgarn* (Jim's Seeds, Weeds & Trees 2005a).

St Ives currently has a DRF monitoring program in place for this species in order to manage any populations which may be present. The monitoring program is carried out on a yearly basis and has been in place since 1998 when the first monitoring results were obtained (Jimýs Seeds, Weeds & Trees 2005a).

The consultant advised that the vegetation surrounding the existing pit and waste dump is degraded and sparse, and that the open Eucalypt woodland of the surveyed area has extensive coverage in the regional area (Jims Seeds, Weeds & Trees 2005). Consequently, it is unlikely that the vegetation to be cleared represents significant habitat for rare or threatened flora species (CALM 2006).

The permit amendment is not likely to have any additional impacts upon conservation significant flora given that the clearance area has been reduced from 92.3 hectares to 71.62 hectares. Furthermore, the clearance area has been redefined to encompass more degraded land immediately adjacent to the existing Leviathan pit.

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

Methodology

CALM (2006)
GIS Database:
- Declared Rare and Priority Flora List - CALM 01/07/05
Jims Seeds, Weeds & Trees (2005)
Jims Seeds, Weeds & Trees (2005a)

(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

No known Threatened Ecological Communities (TECs) have been recorded within the area subject to be cleared (GIS database; Cowan 2001). The nearest known TEC is approximately 77 km south-east of the proposed area. The proposal is not likely to be at variance to this principle.

Methodology

Cowan (2001)
GIS Database:
- Threatened Ecological Communities - CALM 12/4/05

(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

The State Government is committed to the National Objective Targets for Biodiversity Conservation which includes a target that prevents clearance of ecological communities with an extent below 30% of that present pre-European settlement (Department of Natural Resources and Environment 2002; EPA 2000).

While the benchmark of 15% representation in conservation reserves (JANIS Forests Criteria 1997) has not been met for Beard vegetation association 936, approximately 89.2% of the pre-European extent remains for this association and it is therefore of 'least concern' for biodiversity conservation (Hopkins et al. 2001; Department of Natural Resources and Environment 2002).

	Pre-European area (ha)	Current extent (ha)	Remaining %*	Conservation Status**	% in IUCN Class I-IV reserves
IBRA Bioregion - Coolgardie	12,917,718*	12,719,084*	~98.5%	Least concern	9.9%
Shire of Coolgardie	No information available				
Beard vegetation associations - 936	1,013,210	906,826	~89.2%	Least concern	2.3%

With consideration to the above, the proposal is not at variance to this principle.

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

Methodology

Department of Natural Resources and Environment (2002)
EPA (2000)
GIS Database:
- Pre-European Vegetation - DA 01/01
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00_1
Hopkins et al. (2001)
JANIS Forests Criteria (1997)
Shepherd et al. (2001)

(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

No watercourses or wetlands are located within the proposed disturbance area (Jims Seeds, Weeds & Trees 2005; GIS database). A non-perennial salt lake is located approximately 850 m north-west of the proposed clearing area, however, the distance separating the non-perennial lake from the proposed area of clearing ensures that the vegetation to be cleared does not form a buffer, or impact upon the lake system.

The proposal does not impact on native vegetation growing in association with a wetland or watercourse, therefore, it is not likely to be at variance to this principle.

Methodology

GIS Database:
- Hydrography, linear - DOE 1/2/04
- Lakes, 1M - GA 01/06/00
- Rivers, 1M - GA 01/06/00
Jims Seeds, Weeds & Trees (2005)

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

Comments

The proposal is located within the Great Western Plateau, a topographically monotonous surface of low relief and gradients between 1-2% (Beard, 1972 as cited in HGM 1998). The major soil type across the proposed area is a red sandy loam (Newbey, 1984 as cited in HGM 1998), therefore, based on surface water hydrology and topography, it would not appear to be in a high risk soil erosion area. DAWA (2005) advise that the area to be cleared is largely Gumland land system which supports Gimlet and blackbutt woodland over chenopod understorey. The land to be cleared is expected to be level to gently inclined towards the lake system so soil erosion is unlikely to occur if surface water coming off the proposed rock dump is managed (DAWA 2005). Management of surface water runoff from the waste dump is a land use issue and will be managed under the appropriate Mining Proposal in accordance with the *Mining Act 1978*.

With low average annual rainfall (230 mm/yr) and high annual evaporation (2,400 mm/yr), recharge to groundwater would be low, effectively mitigating the likelihood of salinity increasing as a result of the clearing (GIS database). Any clearing is unlikely to increase salinisation, either on-site or off-site, as saline and sub-saline soils are common throughout the region (HGM 1998). Similarly, residency time for locally ponded waters would be limited, effectively reducing the risk of waterlogging across the area to be cleared.

The proposal raises no land degradation issues, therefore, it is not likely to be at variance to this principle (DAWA 2006).

Methodology

DAWA (2006)
GIS Database:
- Evaporation Isopleths - BOM 09/98
- Mean Annual Rainfall Surface (1975-2003) - DOE 09/05

HGM (1998)

(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

There are no CALM managed conservation areas within the area proposed to be cleared. The nearest are the Kambalda Timber Reserve and Kambalda Nature Reserve, which are situated alongside each other and located approximately 17 km north-west of the proposed clearing (GIS database). These conservation reserves and the vegetation within the proposed clearing area are separated by Lake Lefroy, a 57,000 ha salt lake (GIS database). It is unlikely that the vegetation associated with the proposal would be significant in providing an ecological linkage or buffer to these conservation areas and consequently the proposal is not likely to be at variance to this principle.

Methodology

GIS Database:
- CALM Managed Lands and Waters - CALM 1/07/05
- Lakes, 1M - GA 01/06/00

(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

The area to be cleared does not fall within a Public Drinking Water Source Area (PDWSA), and no watercourses or wetlands are located within the proposed disturbance area (Jims Seeds, Weeds & Trees 2005; GIS database). As a result, the proposal will not impact upon the quality of surface water.

The quality of groundwater will not be impacted on through any clearing activity as it is already considered poor with salinities ranging from 14 000 to 35 000 mg/L Total Dissolved Solids (GIS database). The area of native vegetation to be cleared is relatively small and unlikely to have an impact on regional groundwater considering the magnitude of the regional Yilgarn-Goldfieds groundwater province (>290 000 sq km) and the extent of native vegetation remaining in the Coolgardie Bioregion (~98%) (Shepherd 2001; GIS database).

This proposal raises no water quality issues and is not likely to be at variance to this principle.

Methodology

BoM (2006)
GIS Database:
- Public Drinking Water Source Areas (PDWSAs) - DOE 07/02/06
- Groundwater Provinces - WRC 98
- Groundwater Salinity, Statewide - 22/02/00

Jims Seeds, Weeds & Trees (2005)
Shepherd et al. (2001)

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

Comments

With an average annual rainfall of 230 mm/yr and an evaporation rate of approximately 2400 mm/yr, there is little surface flow during normal seasonal rainfall events (Jims Seeds, Weeds & Trees 2005; GIS database). It is only during major rainfall events that there is a possibility of flooding. The broad valleys and lake systems of the region compensate and sustain floodwaters, and the area to be cleared is unlikely to form a catchment sufficiently large enough to cause or increase the incidence of flooding. Consequently, it is not likely that this proposal is at variance to this principle.

Methodology

GIS Database:
- Evaporation Isopleths - BOM 09/98

Jims Seeds, Weeds & Trees (2005)

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

Comments

There are two native title claims over the area under application; WC98/027 and WC99/002 (GIS database). These claims have been registered with the National Native Title Tribunal on behalf of the Widji and Ngadju claimant groups respectively. However, the mining tenement/s have granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There is an aboriginal site of significance (ID 16016) approximately 5 km south of the area under application (GIS database). It is the proponents responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no sites of Aboriginal Significance are damaged through the clearing process.

Clearing Permit 975/1 for the purpose of constructing waste rock dumps for proposed cutbacks at Leviathan was originally granted on 18 May 2006. The Permit has now been amended (CPS 975/2) to reduce the original area approved to clear of 92.3 hectares to an amended area of 71.62 hectares. The boundary of the original area approved to clear has also been redefined, so that clearing has now been approved on Mining Lease M15/1630 (immediately north of the original approval boundary). Clearing previously approved on Mining Lease M 15/143 (immediately south of the redefined boundary) will no longer be required, and has therefore been removed from the amended clearing permit.

Methodology DoE (2006)

GIS Database:

- Aboriginal Sites of Significance - DIA 28/02/03
- Native Title Claims - DLI 7/11/05
- Clearing Instruments

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Mineral Production	Mechanical Removal	71.62	**Grant**	The amended proposal has been assessed against the Clearing Principles. A reduction in the clearing area from 92.3 hectares to 71.62 hectares has been approved. The area approved to clear has been redefined to include clearing on Mining Lease M15/1630 and remove clearing from Mining Lease M15/1543. This amendment approves land clearing immediately adjacent to the existing Leviathan pit and is therefore not considered to have any additional environmental impacts than the permit which was originally granted. The assessing officer therefore recommends the amended permit be granted.

5. References

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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.