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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3198/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Range River Gold Ltd**

1.3. Property details

Property: Mining Lease M39/228
Mining Lease M39/304
Mining Lease M39/264
Miscellaneous Licence 39/47
Local Government Area: Shire Of Laverton
Colloquial name: Craic and Ramornie Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
25		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 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). 18: Low woodland; mulga (*Acacia aneura*). Range River Gold (2009) conducted a vegetation survey over the application area and surrounding vegetation between the 25th and 27th May 2009. Seven vegetation types have been identified as occurring within the application area (Range River Gold, 2009). These are: 1) *Acacia aneura* var. *aneura* Low Woodland over *Senna artemisioides* subsp. *filifolia, Ptilotus obovatus* var. *obovatus*, *Maireana georgii*, *Hibiscus* sp. (MH882) Open Shrubland/Low Open Shrubland over *Sclerolaena articulata* Herbland. 2) *Acacia aneura*, *A. oswaldii*, *A. coolgardiensis*, *Eucalyptus* sp. (MH 892) Low Woodland over *Scaevola spinescens*, *Ptilotus obovatus* var. *obovatus*, *Solanum lasiophyllum*, *Maireana georgii* Low Shrubland. 3) *Acacia aneura*, *A. oswaldii* Low Closed Forest over *Arsteraceae* sp. (MH891) Herbland. 4) *Scaevola spinescens*, *Maireana sedifolia*, *Senna artemisioides* subsp. *filifolia* Shrubland over *Maireana georgii*, *Solanum lasiophyllum*, *Ptilotus obovatus* var. *obovatus*, *Senna artemisioides* subsp. *artemisioides* Low Open Shrubland. 5) *Acacia tetragonophylla* Open Shrubland over *Ptilotus obovatus* var. *obovatus*, *Maireana georgii*, *M. tomentosa* Low Shrubland. 6) *Acacia aneura* Low Woodland over *Maireana sedifolia*, *Senna artemisioides* subsp. *filifolia* Scattered Shrubs over *Ptilotus obovatus*, *Solanum lasiophyllum*, *Maireana georgii*, *Sclerolaena articulata* Open Low Heath/ Low Shrubland.	Range River Gold Ltd has applied to clear up to 25 hectares within an application area of 147 hectares. The proposal is situated within the Craic project area, located approximately 32 kilometres south-west of Laverton, in the East Murchison region (GIS Database). Clearing will be required for: Waste Dump; Access Tracks; Turkey's Nest; The Craic Pit; ROM Pad; and Offices, Workshops and Fuel Farm. Vegetation will be cleared by a bulldozer with its blade down, and vegetation and topsoil will be collected and stockpiled for future rehabilitation (Range River Gold, 2009).	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994). To Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).	The vegetation descriptions were derived from descriptions by Range River Gold (2009).

7) *Acacia aneura*, *A. oswaldii, A. coolgardiensis* Low Woodland over *Scaevola spinescens*, *Maireana sedifolia*, *Senna artemisioides* var. *filifolia* Shrubland over *M. georgii*, *Solanum lasiophyllum*, *Ptilotus obovatus* var. *obovatus*, *Sclerolaena cuneata* Low Shrubland.

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 Craic and Ramornie project mine area is located within the Eastern Murchison Interim Biogeographical Regionalisation for Australia subregion within which the vegetation type is widespread (GIS Database). The application area is covered by the pre-European Beard Vegetation Association 18: Low woodland; mulga (*Acacia aneura*), which covers over 817,000 hectares (GIS Database). Almost 100% of the pre-European vegetation remains within this subregion (Shepherd, 2007). The area under proposal is already disturbed by historical exploration and mining activities, and there is also abundant evidence of rabbit activity with warrens and droppings clearly visible and flocks of goats having been sighted (Range River Gold, 2009).

The vegetation condition of the application area has been described as degraded to excellent according to the Keighery Scale (1994), retaining its basic vegetation structure (Range River Gold, 2009). Based on vegetation condition mapping carried out by Range River Gold (2009), the majority of the vegetation structure has been altered with obvious signs of disturbance. The local vegetation also appears to be relatively low in species richness and diversity (Range River Gold, 2009).

No Declared Rare Flora, Threatened Ecological Communities or Threatened Fauna were noted across the application area (GIS Database). One Priority flora species was recorded during the survey; *Eremophila arachnoides* subsp. *arachnoides* (P3). This sub-species was not recorded on the Department of Environment and Conservation's database searches and its discovery represents a range extension of approximately 300 kilometres. Two specimens of this taxon were recorded during the vegetation survey, one being outside of the application area which will be lodged with the Western Australian Herbarium. Two weed species were identified within the application area, *Acetosa vesicaria* (Ruby Dock), and *Schinus molle* (Japanese Pepper). Both of these species are widespread within the application area.

The vegetation present within the application area is regionally common and except for the one P3 species, does not support species of conservation significance (GIS Database; Range River Gold, 2009). The area has been disturbed previously through mining and grazing activities, with the result that the western end of the project area is in a condition approaching degraded (Range River Gold, 2009).

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

Methodology

Keighery (1994)
Range River Gold (2009)
Shepherd (2007)
GIS Database:
-Declared Rare and Priority Flora List
-Interim Biogeographic Regionalisation for Australia (Subregions)
-Pre European Vegetation
-Threatened Fauna

(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, centred on the coordinate 28'45'23'S, 122'05'07'E, with a radius of 40 kilometres. This search identified five amphibian, 17 avian, 11 mammalian and 52 reptilian species (Western Australian Museum, 2009). Range River Gold (2009) also conducted desktop searches of several government databases including the Threatened and Priority Fauna Database held by the Western Australian Department of Environment and Conservation and the Protected Matters and Environmental Reporting Tools of the Department of Environment, Water Heritage and the Arts. Of these, the following species of conservation significance have been identified as potentially occurring within the application area (GIS Database; Range River Gold, 2009):

- *Acanthiza iredalei* (Slender-billed Thornbill) - listed as 'Vulnerable' under the *Environmental Protection and Biodiversity Conservation* (EPBC) *Act 1999*;
- *Ardeotis australis* (Australian Bustard) listed DEC Priority Four;
- *Burhinus grallarius* (Bush Stone-curlew) listed DEC Priority Four;
- *Cacatua leadbeateri* (Major Mitchell's Cockatoo) Schedule Four (Other specially protected fauna) of the Wildlife Conservation (Specially Protected Fauna) Notice 2008(2);
- *Falco peregrinus* subsp. *macropus* (Peregrine Falcon) Schedule Four (Other specially protected fauna) of the Wildlife Conservation (Specially Protected Fauna) Notice 2008(2);
- *Lagostrophus fasciatus* subsp. *fasciatus* (Banded Hare-wallaby) Schedule One (Fauna that is rare or is

likely to become extinct) of the Wildlife Conservation (Specially Protected Fauna) Notice 2008(2) - listed as 'Vulnerable' under the Environmental Protection and Biodiversity Conservation (EPBC) Act 1999;

- *Macrotis lagotis* (Greater Bilby) Schedule One (Fauna that is rare or is likely to become extinct) of the Wildlife Conservation (Specially Protected Fauna) Notice 2008(2) - listed as 'Vulnerable' under the EPBC Act 1999;
- *Myrmecobius fasciatus* (Numbat) Schedule One (Fauna that is rare or is likely to become extinct) of the Wildlife Conservation (Specially Protected Fauna) Notice 2008(2) - listed as 'Vulnerable' EPBC Act 1999;
- *Neophema splendida* (Scarlet-chested Parrot) listed DEC Priority Four;
- *Northiella haematogaster narethae* (Naretha Blue Bonnet) Schedule Four (Other specially protected fauna) of the Wildlife Conservation (Specially Protected Fauna) Notice 2008(2);
- *Polytelis alexandrae* (Princess Parrot) listed DEC Priority Four - listed as 'Vulnerable' under the EPBC Act 1999;

The search also identified a range of migratory bird species as potentially utilising the application area. It is unlikely that the proposed clearing will have any significant impact on these species based on ease of mobility and widespread distribution of similar or better habitats in the local area and region (Range River Gold, 2009).

Range River Gold (2009) has identified four important landform features with respect to fauna, likely to be present within the application area: mixed Acacia tall shrubland in minor drainage lines; mulga groves and woodlands; mulga/eucalypt woodlands; and chenopod shrubland. The vegetation associated with the drainage lines is likely to be a fauna refuge and as such disturbance should be kept to a minimum. However, observations in the field and examination of aerial photography suggest these vegetation units to be widespread outside the application area and are not recognised as being particularly significant (Range River Gold, 2009).

There were no unique, restricted, or fauna specific habitat types observed in the application area that are not well represented elsewhere throughout the Murchison region (Range River gold, 2009). Although it has been noted that some Schedule or Priority fauna species may utilise these habitats, neither the landforms nor vegetation types represent 'core habitat' for any of these species. The proposed clearing is unlikely to result in a significant impact on fauna or the availability of fauna habitat in the local area or region.

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

Methodology Range River Gold (2009)
Western Australian Museum (2009)
GIS Database:
-Laverton 50cm Orthomosaic

(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 the Department of Enivornment and Conservation database searches, a total of 31 Declared Rare Flora (DRF) and Priority Flora species were recorded within a 50 kilometre radius of the application area (Western Australian Museum, 2009; Range River Gold, 2009). Of these, 23 were considered unlikely to occur in the project area due to habitat preferences (Range River Gold, 2009).

A flora survey was undertaken within the application area between 25th and 27th May 2009 (Range River Gold, 2009). No DRF species were identified within the application area but one Priority Flora species was recorded during this survey: *Eremophila arachnoides* subsp. *arachnoides* (P3). This sub-species was not recorded on DEC database searches and its discovery represents a range extension of approximately 300 kilometres (Range River Gold, 2009). It is recorded as growing on shallow loam over limestone which does not appear to be the case here, although the identification is regarded as accurate due to definitive features (Range River Gold, 2009).

Two specimens of this taxon were recorded during the survey, with one of them being located approximately 100 metres north-west of the proposed road linking the pit and magazine, just outside the potential disturbance area (Range River Gold, 2009). A targeted survey to determine the distribution of this taxon in the area may be worthwhile. It is unlikely that the proposed clearing of one plant will impact on the conservation significance of this species.

The vegetation present within the application area is regionally common and except for the one P3 species, does not support species of conservation significance (GIS Database; Range River Gold, 2009).

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

Methodology Range River Gold (2009)
Western Australian Museum (2009)
GIS Database:

-Laverton 50 cm Orthomosaic

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

Comments

Proposal is not likely to be at variance to this Principle

There are no known Threatened Ecological Communities (TEC) or Priority Ecological Communities within or in the vicinity of the application area (GIS Database; Range River Gold, 2009). The nearest known TEC is located approximately 200 kilometres north-east of the application area (GIS Database). Given the distance between the proposal and the nearest TEC, the proposed clearing is not likely to impact on the conservation of the TEC.

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

Methodology

Range River Gold (2009)
GIS Database:
-Threatened Ecological Communities
-Clearing Regulations - Environmentally Sensitive Areas

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

Comments

Proposal is not at variance to this Principle

The application area is located within the Murchison Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Shepherd (2007) report that approximately 100% of the pre-European vegetation still exists in the Murchison Bioregion. The vegetation in the application area is broadly mapped as Beard Vegetation Association 18: Low woodland; mulga (*Acacia aneura*) (GIS Database; Cowan, 2001). According to Shepherd (2007) there is approximately 100% of this vegetation remaining (see table below).

According to the Bioregional Conservation Status of Ecological Vegetation Classes the conservation status for the Murchison Bioregion and Beard vegetation association 18 is of 'Least Concern' (Department of Natural Resources and Environment, 2002).

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

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Murchison	28,120,590	28,120,590	~100	Least Concern	~1.06
Beard veg assoc. - State					
18	19,892,305	19,890,195	~100	Least Concern	~2.1
Beard veg assoc. - Bioregion					
18	12,403,172	12,403,172	~100	Least Concern	~0.4

* Shepherd (2007)
** Department of Natural Resources and Environment (2002)

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

Methodology

Cowan (2001)
Department of Natural Resources and Environment (2002)
Shepherd (2007)
GIS Database:
-Interim Biogeographic Regionalisation of Australia
-Pre European Vegetation

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

Comments

Proposal is at variance to this Principle

According to available GIS Databases, there are no permanent watercourses within the application area;

however, there are two minor non-perennial watercourses within the application area.

Based on vegetation mapping conducted by Outback Ecology for Range River Gold (2009) and aerial imagery, there would appear to be riparian vegetation present within the application area (GIS Database). The following fauna habitat is present within the application area and is indicative of riparian vegetation:

- Mixed Acacia tall shrubland in minor drainage lines.

The application area experiences an annual rainfall of approximately 233 millimetres according to the nearest recording station at Laverton (Bureau of Meteorology, 2009), and an annual pan evaporation rate of approximately 3400 millimetres (Balkema, 1996). Based on this, the watercourses within the application area would only be expected to carry water during high rainfall events as during normal rainfall events surface water is either quickly utilised by vegetation or lost to evaporation.

Based on the above, the proposed clearing is at variance to this Principle. However, as the minor watercourses located within the application area are only likely to flow following significant rainfall, the proposed clearing is unlikely to result in any significant impact to any watercourse or wetland. The vegetation types present within the application area are common throughout the Laverton region (Range River Gold, 2009). These vegetation types do not demonstrate high environmental or conservation values, and are widely represented in the local area and region (Range River Gold, 2009).

Methodology

Balkema (1996)
Bureau of Meteorology (2009)
Range RiverGold (2009)
GIS Database:
-Hydrography, Lakes (Course Scale, 1m GA)
-Hydrography, Linear (Hyd_Type)
-Rivers

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

Comments

Proposal may be at variance to this Principle

The vegetation condition of the application area varies from degraded to excellent (Range River Gold, 2009). The primary source of disturbance in the project area appears to be mining activities however there is abundant evidence of rabbit activity and flocks of goats have been sighted (Range River Gold, 2009). Much of the application area has been severely impacted by disturbance with intensive management required to return the vegetation to a good condition. The weed species *Acetosa vesicaria* (Ruby Dock) and *Schinus molle* (Japanese Pepper) were also widespread within the application area (Range River Gold, 2009).

Land system mapping by the Department of Agriculture Western Australia shows that the application area falls largely within the Gundockerta land system, with a small area (approximately 0.06 hectares or 0.04% of the application area) being mapped as the Leonora land system (GIS Database).

The Gundockerta land system is described as extensive gently undulating, stony plains, supporting bluebush shrublands (Pringle et al., 1994). An analysis of aerial photography for the application area reveals it is most likely to fall within the 'low rises', 'stony plains', 'drainage zones' and 'alluvial plains' land units of the Gundockerta land system (GIS Database).

The Leonora land system is described as low greenstone hills and stony plains, supporting mixed stony chenopod shrublands (Pringle et al., 1994). An analysis of aerial photography for the application area reveals it is most likely to fall within the 'drainage tracts' land unit for the Leonora land system (GIS Database).

The land units 'alluvial plains' of the Gundockerta land system and 'drainage zones' of the Leonora land system are susceptible to water erosion, particularly in areas where perennial shrub cover has been substantially reduced or the soil surface is disturbed (Pringle et al., 1994). The clearing of native vegetation at the site for mine development purposes, is likely to cause land degradation in the form of soil erosion if adequate precautions are not made. There is potential for erosion to occur at the time of clearing if the site were to be exposed to a heavy rainfall event or high winds. In planning for such events, Range River Gold (2009) has proposed diverting drainage flows to the south of the application area towards another pre-existing ephemeral drainage line (GIS Database).

In order to minimise the risk of soil erosion within the application area, it is recommended that should a permit be granted, a condition be imposed on the permit for the purposes of retaining vegetation and topsoil.

Based on the above issues, the proposal may be at variance to this Principle.

Methodology

Pringle (1994)
Range River Gold (2009)
GIS Database:

-Hydrography, Linear (Hyd_Type)
-Laverton 50cm Orthomosaic
-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 is not situated within a Department of Environment and Conservation managed conservation area (GIS Database). The nearest conservation estate is an unnamed Class C nature reserve located approximately 93 kilometres south-west of the application area (GIS Database). Goongarrie National Park is the closest Class A conservation area to the application area, located approximately 128 kilometres south-west (GIS Database). Based on the distance between the proposal and the nearest conservation area, the proposed clearing is not likely to impact on their conservation values.

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

Methodology

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

There are no permanent water bodies or watercourses within the application area (GIS Database). Two converging ephemeral drainage lines traverse the application area flowing eastward, requiring diversion to the south of the proposed pit, ROM pad and waste dump (Range River Gold, 2009). The diversion is precautionary to maintain natural drainage patterns during 100 year Average Recurrence Interval (ARI) floods. The application area is located in an arid region, with mainly winter rainfall (Bureau of Meteorology, 2009). With an annual average rainfall of approximately 233 millimetres (Bureau of Meteorology, 2009), and an annual pan evaporation rate of 3400 millimetres (Balkema, 1996), there is little surface flow during normal seasonal rains. The proposed clearing is not likely to cause the quality of surface water to deteriorate.

According to available databases, the application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The closest PDWSA is the Laverton Water Reserve located approximately six kilometres north of the application area. As the ephemeral drainage lines traversing the application area run in an eastward direction, it is unlikely that that the proposed clearing will impact on the quality of the PDWSA.

The application area is located within the Yilgarn Goldfields Groundwater Province (GIS Database). The groundwater salinity within the application area is approximately 1,000 - 3,000 milligrams/litre Total Dissolved Solids (TDS) (GIS Database). Given the size of the area to be cleared (25 hectares) compared to the size of the Yilgarn Goldfields Groundwater Province (29,644,595 hectares), the proposed clearing is not likely to cause salinity levels within the application area to alter significantly (GIS Database).

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

Methodology

Balkema (1996)
Bureau of Meteorology (2009)
Range River Gold (2009)
GIS Database:
-Groundwater Provinces
-Groundwater Salinity, Statewide
-Hydrography, Linear (Hyd_Type)
-Public Drinking Water Source Area (PDWSA)

(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 Lake Carey catchment area (GIS Database). The size of the area to be cleared (25 hectares) in relation to the size of the Lake Carey catchment area (11,378,213 hectares) is not likely to lead to an increase in flood height or duration (GIS Database).

The application area receives low rainfall (approximately 233 millimetres/year), usually experienced during the winter months (Range River Gold 2009; Bureau of Meteorology, 2009). The water systems located within and in close proximity to the application area are dry for the majority of the year and only flow during and immediately after significant rainfall (Range River Gold, 2009). It is likely that during times of intense rainfall there may be some localised flooding in adjacent areas.

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

Methodology Bureau of Meteorology (2009)
Range River Gold (2009)
GIS Database:
-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: WC99/001. This claim has been registered with the National Native Title Tribunal on behalf of the claimant groups. 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 (ie. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are two known Aboriginal sites of significance within the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

No submissions were received raising objections to this proposal.

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

Methodology GIS Database:
-Aboriginal Sites of Significance
-Native Title Claims

4. Assessor's comments

Comment

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

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

5. References

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

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Range River Gold (2009) - 3198/1 Mount Morgans The Craic and Ramornie Project - Level 1 Flora and Fauna Assessment Report. Outback Ecology Services, Western Australia.

Shepherd, D.P. (2007). Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.

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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.
DMP	Department of Mines and Petroleum, Western Australia.
DoE	Department of Environment, Western Australia.
DoIR	Department of Industry and Resources, Western Australia.
DOLA	Department of Land Administration, Western Australia.
DoW	Department of Water
EP Act	Environment Protection Act 1986, Western Australia.
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System.
IBRA	Interim Biogeographic Regionalisation for Australia.
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
RIWI	Rights in Water and Irrigation Act 1914, Western Australia.
s.17	Section 17 of the Environment Protection Act 1986, Western Australia.
TECs	Threatened Ecological Communities.

Definitions:

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

P1	**Priority One - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P2	**Priority Two - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P3	**Priority Three - Poorly Known taxa**: taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.
P4	**Priority Four – Rare taxa**: taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.
R	**Declared Rare Flora – Extant taxa** *(= Threatened Flora = Endangered + Vulnerable)*: taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
X	**Declared Rare Flora - Presumed Extinct taxa**: taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

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

Schedule 1	**Schedule 1 – Fauna that is rare or likely to become extinct:** being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.
Schedule 2	**Schedule 2 – Fauna that is presumed to be extinct:** being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.
Schedule 3	**Schedule 3 – Birds protected under an international agreement:** being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.
Schedule 4	**Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

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

P1	**Priority One: Taxa with few, poorly known populations on threatened lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g.

agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

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

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

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

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

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

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

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

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

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

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

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