



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4464/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Saracen Gold Mines Pty Ltd

1.3. Property details

Property: Mining Lease 39/307
Mining Lease 39/639
Mining Lease 39/740
Mining Lease 39/741
Miscellaneous Licence 39/130
Miscellaneous Licence 39/134
Miscellaneous Licence 39/135
Local Government Area: Shire of Menzies
Colloquial name: Deep South and Safari Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 1 September 2011

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

Beard vegetation associations have been mapped for the whole of Western Australia. One Beard vegetation association has been mapped within the application areas (GIS Database):

Beard vegetation association 18: low woodland Mulga (*Acacia aneura*).

A flora and vegetation survey over a 773 hectare area that included the application areas was conducted in Spring 2010 (Alexander Holm and Associates, 2011a). The following vegetation communities were recorded within the survey area:

Vegetation unit 1: Low hills on basalt or metamorphic rocks

Very scattered to scattered (Projected Foliage Cover (PFC) 5 – 15%) mixed low (<1 metre) and mid height (1 – 2 metres) shrublands dominated by *Ptilotus obovatus*, *Senna artemisioides* ssp. *petiolaris* and *Maireana georgei* or dominated by *Ptilotus obovatus*, *Philotheca brucei* ssp. *brucei*, *Eremophila latrobei* and *Sida calyxhymenia*, isolated *Acacia* ssp.

Vegetation unit 2: Lower footslopes on basalt or metamorphic rocks

Scattered (PFC 10 – 15%) mixed height (0.3 – 5 metres) shrublands dominated by *Acacia sibirica*, *Acacia caesaneura*, *Ptilotus obovatus*, *Senna artemisioides* ssp. *petiolaris* and *Dodonaea lobulata* with numerous other low shrubs and occasional *Casuarina pauper* trees or dominated by *Ptilotus obovatus*, *Dodonaea lobulata*, *Maireana georgei* and *Maireana triptera*.

Vegetation unit 3: Low rises on metamorphic rocks

Very scattered to scattered (PFC 5 – 15%) tall shrublands 4 – 6 metres dominated by *Acacia caesaneura*, *Acacia quadrimarginea*, *Acacia ramulosa* with undershrubs *Ptilotus obovatus*, *Eremophila glandulifera*, *Scaevola spinescens* and *Maireana* ssp. or scattered mixed height (0.3 – 3 metres) generally >20% mixed height (0.3 – 3 metres) shrublands dominated by *Dodonaea lobulata*, *Acacia hemi* and *Ptilotus obovatus* with occasional trees of *Acacia incurvaneura*.

Vegetation unit 4: Sloping sand sheets

Moderately close (PFC 20 – 25%) tall shrublands / woodlands up to about 12 metres with numerous co-dominants including *Acacia caesaneura*, *Bursaria occidentalis*, *Dodonaea rigida*, *Acacia ligulata*, *Senna artemisioides* ssp. *petiolaris* and *Ptilotus obovatus*; occasional *Eucalyptus youngiana*.

Vegetation unit 5: Loamy plains with Acacia shrublands

Very scattered to moderately close (PFC 10 – 50%, occasionally more where vegetation is clumped or groved) tall

shrublands to about 8 metres dominated by *Acacia caesaneura* and/ or *Acacia incurvaneura* with numerous undershrubs commonly *Acacia ligulata*, *Acacia tetragonophylla*, *Acacia burkittii*, *Ptilotus obovatus*, *Senna artemisioides* ssp. *petiolaris*, *Rhagodia eremaea*, *Scaevola spinescens*, *Solanum lasiophyllum*, *Eremophila glandulifera* and other *Eremophila* spp.

Vegetation unit 6: Hardpan plains

Very scattered to moderately close (PFC 5 – 25%) tall (4 – 9 metres) shrublands dominated by *Acacia incurvaneura* and *Acacia caesaneura*, also *Acacia tetragonophylla*, *Acacia ramulosa* var. *ramulosa* and *Acacia burkittii*; common low shrubs are *Ptilotus obovatus*, *Ptilotus schwartzii*, *Eremophila metallicorum*, *Eremophila glandulifera*, *Maireana planifolia*, *Senna artemisioides* ssp. *petiolaris*, *Rhagodia eremaea*, *Spartothamnella teucrifolia* and *Solanum lasiophyllum*.

Vegetation unit 7: Drainage tracts – unchannelled

Moderately close to closed (PFC 30 – 80%) tall shrublands or woodlands to 10 metres dominated by *Acacia incurvaneura* and/or *Acacia caesaneura* with poorly developed or no lower layers; other isolated common shrubs are *Grevillea stenobotrya*, *Acacia tetragonophylla*, *Eremophila gilesii* ssp. *variabilis*, *Eremophila glandulifera*, *Rhagodia eremaea*, *Ptilotus obovatus* and *Maireana planifolia*. Occasionally less dense *Acacias*.

Vegetation unit 8: Drainage tracts with creeklines

Moderately close to closed (PFC 20 – 80%) tall shrublands (6 – 10 metres) of *Acacia incurvaneura*, *Acacia tetragonophylla*, *Acacia burkittii* with numerous mid and low shrubs *Eremophila metallicorum*, *Senna cardiosperma*, *Rhagodia eremaea* and *Enchylaena tomentosa*.

Rarely moderately close (PFC about 30%) mid height shrublands (1 – 2 metres) dominated by *Acacia burkittii* with undershrubs such as *Ptilotus obovatus*, *Maireana pyramidata*, *Rhagodia eremaea* and *Senna* spp.

Clearing Description Saracen Gold Mines Pty Ltd (Saracen) proposes to clear up to 175 hectares of native vegetation. The application area is located approximately 100 kilometres south of Laverton (GIS Database).

The purpose of the proposed clearing is mineral production. This includes clearing for extension of open pits, laydown areas, dewatering pipelines, administration area, landfill, accommodation village, waste rock dump, haul and access roads as well as ongoing exploration drilling in the vicinity of the pit (Saracen, 2011). Topsoil and vegetation will be stockpiled for use in rehabilitation (Saracen, 2011).

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

to

Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).

Comment The vegetation condition rating is derived from a flora and vegetation survey conducted by Alexander Holm and Associates in Spring, 2010.

Disturbance is primarily the result of pastoral activities and mineral exploration and production activities (Alexander Holm and Associates, 2011a).

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 may be at variance to this Principle**

The application areas are located within the Eastern Murchison subregion of the Murchison Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). The Eastern Murchison subregion is described by CALM (2002) as being rich and diverse in both its flora and fauna; however, most species are wide ranging and usually occur in at least one, and often several adjoining subregions.

A flora and vegetation survey of three separate application areas, totalling a survey area of approximately 772.5 hectares, was conducted by Alexander Holm and Associates in Spring 2010. This survey recorded a total of 191 flora species, representing 41 families (Alexander Holm and Associates, 2011a). This level of diversity is considered by Alexander Holm and Associates (2011a) to be consistent with Mulga shrublands found throughout the north-east Goldfields and is not considered unusually diverse.

No Threatened Ecological Communities, Priority Ecological Communities, Declared Rare Flora or Priority Flora were identified during the flora and vegetation survey of the application area (Alexander Holm and Associates, 2011a). During the survey Alexander Holm and Associates (2011a) recorded four occurrences of *Arthropodium* sp. Goldfields (H. Pringle 2188) which has previously been collected from three locations in Western Australia and is likely to be considered a 'Priority' species. This species has been lodged with the Department of Environment and Conservation for registration as a new species (Alexander Holm and Associates, 2011a). A.A. Mitchell (as cited in Alexander Holmes and Associates, 2011b) comments that 'this species is very hard to see because of its rosette forming habitat and brief life of its fine flowering stems, whose flowers are not showy'. Alexander Holm and Associates (2011b) considers it highly likely that *Arthropodium* sp. Goldfields is present in drainage tracts within Mulga dominated landscapes throughout the north-east Goldfields. Saracen (2011) has stated that they will try to minimise impacts to known locations of *Arthropodium* sp., however one plant may be impacted by a different project. Potential impacts to unidentified flora species as a result of the proposed clearing may be minimised by the implementation of a flora management condition.

Six weed species have been recorded within the survey area (Alexander Holm and Associates, 2011a). The

presence of weed species lowers the biodiversity value of the areas. It is important to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested area. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

A Level 2 fauna survey was conducted by Coffey Environments over the application areas and adjacent areas in December 2010. It was established during the desktop survey that a total of 298 vertebrate fauna species could potentially occur within the area; however, during the field survey only 81 of these species were recorded (Coffey Environments, 2011). The 81 species recorded during the field survey consisted of 12 terrestrial mammals and six bat species, 42 bird species and 21 reptile species. Based on an assessment of the biodiversity values of the proposed clearing areas, Coffey Environments (2011) has concluded the project area is not considered to contain an unusual or high degree of biodiversity value when compared to the broader region.

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

Methodology Alexander Holm and Associates (2011a)
Alexander and Associates (2011b)
CALM (2002)
Coffey Environments (2011)
Saracen (2011)
GIS Database:
- IBRA WA (Regions - Subregions)

(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**

Coffey Environments conducted a Level 2 fauna survey of the application areas and adjacent areas in December 2010. Six major fauna habitats / land systems were recorded within the survey area (Coffey Environments, 2011):

- *Acacia* (Mulga) Shrubland on clay soils, termed Dense Mulga;
- *Acacia* Shrubland on rocky soils, termed Open Mulga;
- *Eucalyptus* Woodland;
- Drainage Lines;
- Rocky Outcrops; and
- Disturbed areas of cleared vegetation.

No Malleefowl nests (current or moribund) were located within the survey area during the field surveys; however, one adult bird was sighted in dense Mulga woodland (Coffey Environments, 2011). It is the opinion of Coffey Environments (2011) that Malleefowl may occasionally be recorded in the project area; however, would only construct mounds in very dense habitat with extensive ground litter, which is not located in the project area.

Of the habitats recorded during the fauna survey, Coffey Environments (2011) consider that four of them are likely to be of medium to high value to fauna locally (Dense Mulga, Eucalyptus Woodland, Drainage Lines and Rocky Outcrops). On a regional scale these are likely to be of low to medium value to fauna (Coffey Environments, 2011). Open Mulga habitat, which is the most common habitat within the survey area, is considered to be of low conservation value both locally and regionally (Coffey Environments, 2011).

Clearing of the vegetation within the application areas will impact on the vertebrate fauna in these areas (Coffey Environments, 2011). Direct mortality of small reptiles, amphibians and mammals will occur during the clearing process (Coffey Environments, 2011). Other taxa, particularly larger mammals and reptiles and many birds, will be displaced and are likely to move into adjacent areas which is likely to increase competition for resources (Coffey Environments, 2011). However, it is the opinion of Coffey Environments (2011), that the proposed clearing is unlikely to significantly impact on an ecosystem of conservation significance, or significantly reduce or alter a terrestrial fauna assemblage of conservation significance in a regional context.

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

Methodology Coffey Environments (2011)

(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**

A flora and vegetation survey was conducted by Alexander Holm and Associates over the application areas in Spring 2010.

No Declared Rare Flora species were recorded within the application areas during the flora and vegetation survey (Alexander Holm and Associates, 2011a).

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

Methodology Alexander Holm and Associates (2011a)

(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 (TECs) within the areas applied to clear (GIS Database). There are no known TECs within 200 kilometres of the application areas (GIS Database).

Alexander Holm and Associates (2011a) reports that no TECs were identified within the application areas during the flora and vegetation survey.

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

Methodology Alexander Holm and Associates (2011a)
GIS Database:
- Threatened Ecological Sites Buffered

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

Comments Proposal is not at variance to this Principle

The application areas fall within the Murchison Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). Shepherd (2009) reports that approximately 100% of the pre-European vegetation still exists within the Murchison bioregion (see table below). The vegetation within the application areas is recorded as the following Beard vegetation association (Shepherd, 2009):

Beard vegetation association 18: low woodland; Mulga (*Acacia aneura*).

According to Shepherd (2009) approximately 100% of this vegetation association still exists within the bioregion (see table below).

The vegetation within the application areas is not a remnant of 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 - Murchison	28,120,587	28,120,587	~100	Least Concern	~1
Beard vegetation associations - State					
18	19,892,305	19,890,275	~99.9	Least Concern	~2
Beard vegetation associations - Bioregion					
18	12,403,172	12,403,172	~100	Least Concern	~0.37

* Shepherd (2009)

** 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
Shepherd (2009)
GIS Database:
- IBRA WA (Regions – Subregions)

(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

There are no permanent watercourses or wetlands within the application areas; however, there are several minor ephemeral watercourses (GIS Database). Alexander Holm and Associates (2011a) reports that two vegetation units within the application areas are associated within drainage areas:

- **Vegetation unit 7:** Drainage Tracts – unchannelled; and
- **Vegetation unit 8:** Drainage Tracts with creeklines.

Vegetation associated with drainage lines will be impacted by the proposal. One of these drainage channels has already been diverted around the existing mine by bunds (Saracen, 2011). Minor ephemeral watercourses and associated vegetation are fairly common throughout the north-east Goldfields (Alexander Holm and Associates, 2011a). Therefore, the clearing of the above vegetation associations will have a localised impact; however, the impact of this clearing will be minor in a regional context.

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

Methodology Alexander Holm and Associates (2011a)
Saracen (2011)
GIS Database:
- Hydrography, linear

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

Comments Proposal may be at variance to this Principle

The proposed clearing is comprised of the Laverton and Monk land systems (GIS Database).

The Laverton land system consists of greenstone hills and ridges with *Acacia* shrublands (Pringle et al., 1994). Stone mantles protect most of this land system against soil erosion, the exception being narrow drainage tracts which are mildly susceptible to water erosion (Pringle et al., 1994).

The Monk land system consists of hardpan plains with occasionally sandy banks, supporting Mulga tall shrublands and Wanderrrie grasses (Pringle et al., 1994). Drainage tracts are mildly susceptible to water erosion; this system is susceptible to water starvation and consequent loss of vigour in vegetation if natural water flow is impeded (Pringle et al., 1994).

Alexander Holm and Associates (2011a) has identified vegetation unit 4 'Sloping Sand Sheets' and vegetation unit 8 'Drainage Tracts with Creeklines' as being particularly susceptible to soil erosion if disturbed. It has been recommended that disturbance to drainage tracts in vegetation units 7 and 8 be minimised and that disturbance to rocky hills (vegetation unit 1) and associated sloping sand sheets (vegetation unit 4) be avoided).

Saracen (2011) has stated that where impacts to existing drainage lines or sheet flow are unavoidable the Surface Water Management Plan will be implemented to redirect clean runoff away from the mine area and contain potentially contaminated runoff within the mine area. Bunds will be installed around structures to prevent potentially contaminated runoff from entering drainage lines (Saracen, 2011). Furthermore, Saracen (2011) has stated that rocky hills and sloping sand sheets will be avoided with no infrastructure to be constructed in these areas. Soil erosion as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

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

Methodology Alexander Holm and Associates (2011a)
Pringle et al. (1994)
Saracen (2011)
GIS Database:
- Rangeland land system mapping

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

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

The proposed clearing is not located within any conservation areas (GIS Database). The nearest Department of Environment and Conservation managed land is the Goongarrie National Park located approximately 85 kilometres south-west of the application area (GIS Database).

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

Methodology GIS Database:
- DEC Tenure

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

Comments Proposal may be at variance to this Principle

The application areas are not located within a Public Drinking Water Source Area (GIS Database). The

groundwater in the region varies from almost fresh to brackish and is approximately 30 to 35 metres below ground level (Alexander Holm and Associates, 2011a). The removal of 175 hectares of native vegetation is unlikely to cause deterioration of underground water quality.

The application areas are located within an arid to semi-arid region. No permanent waterbodies or watercourses occur within the application areas; however, there are several minor ephemeral watercourses that transect the proposed clearing areas (GIS Database). Surface water runoff is only likely to occur during and immediately following significant rainfall events. Under these conditions runoff and sheet flow could exacerbate soil erosion.

Saracen (2011) has a Surface Water Management Plan in place to help minimise impacts and changes to surface water flows. Where impacts to existing drainage lines of sheet flow are unavoidable the Surface Water Management Plan will be implemented to redirect clean runoff away from the mining area and contain potentially contaminated runoff within the mine area (Saracen, 2011).

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

Methodology Alexander Holm and Associates (2011a)
Saracen (2011)
GIS Database:
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)

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

Comments **Proposal is not likely to be at variance to this Principle**
The application areas are located within an arid to semi-arid region where the evaporation rate greatly exceeds the average annual rainfall (Alexander Holm and Associates, 2011a). According to available databases there are no permanent watercourses mapped within the application areas, however, several minor ephemeral watercourses occur (GIS Database). These drainage lines are expected to be dry for most of the year and would likely only flow immediately following significant rainfall events that originate from the north-west, primarily during January to March (Alexander Holm and Associates, 2011a). Given the above, it is not considered likely that the proposed clearing will increase the incidence or intensity of flood events.

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

Methodology Alexander Holm and Associates (2011a)
GIS Database:
- Hydrography, linear

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

Comments
There is one Native Title claim (WC10/18) over the areas under application (GIS Database). This claim has been registered with the Native Title Tribunal on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993*, and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process. Therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

According to available databases there are no registered Aboriginal Sites of Significance within the application areas (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is noted that the proposed clearing may impact on a protected matter under the *Environment Protection and Biodiversity Conservation Act 1999* (the *EPBC Act*). The proponent may be required to refer the project to the (Federal) Department of Sustainability, Environment, Water, Population and Communities (SEWPAC) for environmental impact assessment under the *EPBC Act*. The proponent is advised to contact SEWPAC for further information regarding notification and referral responsibilities under the *EPBC Act*.

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

The clearing permit was advertised by the Department of Mines and Petroleum on 11 July 2011, inviting submissions from the public. No submissions were received.

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

4. References

- Alexander Holm and Associates (2011a) Environmental Assessment: Proposed Expansion of Safari and Deep South Mines. Prepared for Saracen Gold Mines Pty Ltd. Unpublished report. Alexander Holm and Associates, Western Australia.
- Alexander Holm and Associates (2011b) A risk assessment on impacts of proposed clearing on *Arthropodium* sp. Goldfields (H. Pringle 2188 for: Saracen Gold Mines Pty Ltd. Unpublished report. Alexander Holm and Associates, Natural Resource Management Services, Western Australia.
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- Coffey Environments (2011) Vertebrate Fauna Survey: Saracen Mineral Holding Ltd. Safari and Deep South Mining Tenements. Prepared for Saracen Gold Mines Pty Ltd. Unpublished report. Coffey Environments Australia Pty Ltd, Western Australia.
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Pringle, H., Van Vreeswyk, A. And Gilligan, S. (1994) Technical Bulletin: An inventory and condition survey of the north-eastern Goldfields, Western Australia. No. 87. Department of Agriculture, Western Australia.
- Saracen (2011) Deep South and Safari Clearing Permit Application Supporting Information. Saracen Gold Mines Pty Ltd.
- Shepherd, D.P. (2009) 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.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
CALM	Department of Conservation and Land Management (now DEC), Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DEC), Western Australia
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DoE	Department of Environment (now DEC), Western Australia
DoIR	Department of Industry and Resources (now DMP), Western Australia
DOLA	Department of Land Administration, Western Australia
DoW	Department of Water
EP Act	Environmental Protection Act 1986, Western Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
RIWI Act	Rights in Water and Irrigation Act 1914, Western Australia
s.17	Section 17 of the Environment Protection Act 1986, Western Australia
TEC	Threatened Ecological Community

Definitions:

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

- P1** **Priority One - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P2** **Priority Two - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P3** **Priority Three - Poorly Known taxa:** taxa which are known from several populations, at least some of which

are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.

- P4** **Priority Four – Rare taxa:** taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.
- R** **Declared Rare Flora – Extant taxa (= Threatened Flora = Endangered + Vulnerable):** taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
- X** **Declared Rare Flora - Presumed Extinct taxa:** taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

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

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

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

- P1** **Priority One: Taxa with few, poorly known populations on threatened lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P2** **Priority Two: Taxa with few, poorly known populations on conservation lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P3** **Priority Three: Taxa with several, poorly known populations, some on conservation lands:** Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P4** **Priority Four: Taxa in need of monitoring:** Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.
- P5** **Priority Five: Taxa in need of monitoring:** Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

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

- EX** **Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.
- EX(W)** **Extinct in the wild:** A native species which:
(a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
(b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
- CR** **Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
- EN** **Endangered:** A native species which:
(a) is not critically endangered; and
(b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
- VU** **Vulnerable:** A native species which:
(a) is not critically endangered or endangered; and
(b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

CD

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