



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 5426/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Saracen Gold Mines Pty Ltd

1.3. Property details

Property: Mining Lease 28/269
Mining Lease 31/220
Mining Lease 31/295
Local Government Area: Shire of Menzies and City of Kalgoorlie- Boulder
Colloquial name: TSF Expansion Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
250		Mechanical Removal	Construction of a Tailings Storage Facility and associated activities

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 14 February 2013

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description Beard vegetation associations have been mapped for the whole of Western Australia. Two Beard vegetation associations have been mapped within the application area (GIS Database):

Beard vegetation association 20: Low woodland; mulga mixed with *Allocasuarina cristata* & *Eucalyptus* sp; and

Beard vegetation association 24: Low woodland; *Allocasuarina cristata* (Government of Western Australia, 2011; GIS Database).

A flora and vegetation survey conducted by Holm (2012) during 17 to 21 November 2012 identified six distinct vegetation communities within the application area:

2a: Low lateritic rises – Very sparse woodland (to 10 metres) of *Casuarina obesa* with very sparse mid-height shrub layers dominated by *Eremophila scoparia*, *Scaevola spinescens*, *Senna artemisioides* subsp. *filifolia* and *Acacia colletioides*.

2b: Low rises on basaltic or metamorphic rocks – Very sparse to mid-dense mixed height degraded chenopod shrublands dominated by *Dodonaea lobulata*, *Senna artemisioides* subsp. *filifolia*, *Acacia burkittii*, *Ptilotus obovatus* with isolated to very sparse tree layer (6 to 15 meter) of *Casuarina obesa* and occasionally *A. incurvaneura*, *Grevillea nematophylla* subsp. *nematophylla* and/or *Alextrion oleifolius*. Less frequently shrublands dominated by *Maireana sedifolia*;

2c: Sandy rises – Sparse woodlands dominated by *Acacia incurvaneura* and low mallees including *Eucalyptus eremicola*, *E. ceratocorys* and *E. oldfieldii* over a diverse sparse Shrubland with spinifex (*Triodia irritans*) often dominated by myrtaceous shrubs. Shrubs include *Eremophila forrestii* subsp. *forrestii*, *Thryptomene kochii*, *Verticordia pritzelii*, *Prostanthera althoferi* subsp. *althoferi* and *Acacia effusifolia*;

4a: Plains supporting eucalypt or acacia shrublands – Very sparse tall *Acacia* shrublands (4 to 6 metres) dominated by *Acacia incurvaneura*, *A. aptaneura* or sparse mid height *Acacia* shrublands dominated by *A. burkittii* with overstoreys of isolated *Casuarina obesa* or *Eucalyptus oleosa* subsp. *oleosa* and lower shrubs including *Dodonaea lobulata*, *Senna artemisioides* subsp. *filifolia* and *Ptilotus obovatus*;

4b: Sand plains supporting sparse eucalypt woodlands – Very sparse eucalypt woodland (6 to 10 metres) of *Eucalyptus flocktoniae* subsp. *flocktoniae*, *E. yilgarnensis* and *E. oleosa* subsp. *oleosa* over mixed height, very sparse shrubs including *Eremophila caperata*, *Acacia colletioides* and *Westringia rigida* and mid-dense *Triodia irritans*; and

5: Alluvial plains supporting chenopod shrublands – Very sparse to sparse mixed height chenopod shrublands dominated by *Maireana sedifolia*, *M. georgei*, *M. pyramidata*, *Atriplex vesicaria*, *Ptilotus obovatus* and others or in poor condition dominated by *Senna artemisioides* subsp. *filifolia*, *Eremophila scorparia*, *Dodonaea*

lobulata and *Acacia burkittii* overtopped with isolated and clumped tree layer of *Casuarina obesa*, *Eucalyptus brachycorys* and *E. lesouefii*.

Clearing Description Saracen Gold Mines is proposing to clear up to 250 hectares of native vegetation within an application area of 681 hectares for the construction of a Tailings Storage Facility (TSF). This includes associated pipe work, monitoring bores and other infrastructure and rehabilitation of the existing TSF batters.

The vegetation will be cleared using a bull dozer and grader or scrapers. The vegetation and topsoil will be stockpiled separately for use in rehabilitation.

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

To:

Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994).

Comment The application area is located in the East Murchison subregion of Western Australia and is situated approximately 105 kilometres north-east of the Kalgoorlie town site (GIS Database).

The vegetation condition was derived from a vegetation survey conducted by Holm (2012).

3. Assessment of application against clearing principles

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

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

The application area occurs within the East Murchison subregion of the Murchison Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is characterised by internal drainage and extensive areas of elevated red desert sandplains with minimal dune development. Vegetation is dominated by Mulga Woodlands which is often rich in ephemerals; hummock grasslands, saltbush shrublands and *Halosarcia* shrublands (CALM, 2002).

Holm (2012) conducted a flora and vegetation survey over the application area during 17 to 21 November 2012. The flora and vegetation survey identified six vegetation communities within the application area. The area proposed to be cleared is not considered to be remnant vegetation and has been disturbed by recent mining activity, has been grazed, and vehicle and pastoral fences cross the area. The condition of the vegetation types are classified as 'completely degraded' to 'very good' (Keighery, 1994; Holm, 2012). The flora survey identified a total of 136 vascular plant taxa from 25 families within the application area. Species composition and vegetation communities are typical of the area and not considered to be unusually diverse (Holm, 2012). The collection of *Daviesia benthamii* subsp. *acanthoclona*, *Eucalyptus flocktoniae* subsp. *flocktoniae*, *E. oleosa* subsp. *cylindroidea*, *Marianthus bicolor*, *Spartothamnella* subsp. *Helena & Aurora Range* and *Thryptomene kochii* recorded within the application area represent significant extension of their known distribution range (Holm, 2012).

A search of the Department of Environment and Conservation's Threatened and Priority Flora databases revealed one record of Priority Flora species within a 20 kilometre radius of the application area (DEC, 2013). No Threatened Flora species were identified (DEC, 2013). Holm (2012) identified no Threatened Flora and two Priority Flora species within the application area. A single plant of *Spartothamnella* sp. *Helena & Aurora Range* (Priority 3) species and a single population of at least 100 plants of *Eremophila arachnoids* subsp. *tenera* (Priority 1) species, were located during the survey within vegetation type 5. Saracen (2012) state that infrastructure has been designed to avoid the area in which the two priority species are located. The known locations of the two priority species will not be disturbed. Potential impacts to this Priority Flora species may be minimised through the implementation of a flora management condition.

No Threatened Ecological Communities or Priority Ecological Communities were recorded within the application area (GIS Database).

There was no weed species identified during the survey (Holm, 2012). Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area. Potential impacts to the biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

There were six fauna habitat types recorded within the application area based on vegetation structure and types identified by Holm (2012). All faunal habitats within the application area are considered to be common and widespread within the subregion and faunal assemblages are unlikely to be different to those found in similar habitat located elsewhere in the region (GIS Database). The clearing of 250 hectares of native vegetation within the 681 hectare application area is unlikely to have a significant impact on faunal diversity in a regional and local context.

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

Methodology CALM (2002)
DEC (2013)
Holm (2012)
Keighery (1994)
GIS Database:

- IBRA WA (Regions - Subregions)
- Pre-European vegetation
- Threatened Ecological Sites Buffered

(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

There were six fauna habitat types recorded within the application area based on vegetation structure and types identified by Holm (2012).

There was no fauna survey conducted over the application area. A fauna survey over a large area which includes the application area conducted by Metcalf & Bamford (2002) and Coffey Environments (2010) concluded that the vertebrate fauna of the application area is likely to be typical of a broad area of the Eastern Goldfields, that is, moderately rich in reptiles and birds. Metcalf & Bamford (2002) and Coffey Environments (2010) did not identify any significant faunal assemblages within the survey area. Coffey Environments (2010) and Metcalf & Bamford (2002) identified the vegetation condition to be 'completely degraded' to 'very good' (Keighery, 1994).

There are is one species of conservation significance listed as either threatened species under the *Environment Protection and Biodiversity Conservation Act (EPBC) 1999* or protected under Western Australian legislation (*Wildlife Conservation Act 1950*), which may potentially occur within a 20 kilometre radius of the application areas; the Malleefowl (*Leipoa ocellata*) (DEC, 2013).

Holm (2012) conducted a targeted Malleefowl search as part of the flora survey in November 2012. The survey identified three active and three moribund nests within the application area, tracks were observed and two birds were sighted. There was no clear habitat preference for the Malleefowls, although Malleefowl appeared to avoid areas with dense spinifex (Holm, 2012). The proposed clearing will not impact on the active Malleefowl nests (Saracen, 2013). One of the active nests is near the TSF footprint, and Saracen (2013) will maintain a 50 metre buffer around the nest during clearing and construction of topsoil stockpiles. Saracen (2013) will have a 100 meter buffer around the two known nests and any other active nests found. Potential impacts to conservation significant fauna as a result of the proposed clearing may be minimised by the implementation of a fauna management condition.

The proposed clearing of 250 hectares of native vegetation is not likely to impact critical feeding or breeding habitat for the Malleefowl as they are considered highly mobile and have a wide distribution. The clearing is unlikely to significantly impact on this species.

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

Methodology Coffey Environments (2010)
DEC (2013)
Holm (2012)
Keighery (1994)
Metcalf & Bamford (2002)
Saracen (2013)

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

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

According to available databases, there are no records of Threatened Flora within the application area (GIS Database). A search of the Department of Environment and Conservation's Threatened and Priority Flora databases identified no Threatened Flora species as occurring within a 20 kilometre radius of the application area (DEC, 2013).

Holm (2012) conducted a flora and vegetation survey of the application area between 17 and 21 November. No Threatened Flora was recorded within the survey area.

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

Methodology DEC (2013)
Holm (2012)
GIS Database:
- Threatened and Priority Flora List

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

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

A search of the available databases showed that there are no known Threatened Ecological Communities

situated within 30 kilometres 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:
- Threatened Ecological Sites Buffered

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

Comments Proposal is not at variance to this Principle

The application area falls within the Murchison IBRA bioregion (GIS Database). The vegetation within the application area is recorded as:

Beard vegetation association 20: Low woodland; mulga mixed with *Allocasuarina cristata* & *Eucalyptus* sp; and

Beard vegetation association 24: Low woodland; *Allocasuarina cristata* (Government of Western Australia, 2011; GIS Database).

Beard vegetation associations 20 and 24 retain approximately 99% of their pre-European extent within the bioregion (Government of Western Australia, 2011). The area proposed to be cleared is not a significant remnant of native vegetation.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Murchison	28,120,587	28,044,823	~99.73	Least Concern	1.05
Beard vegetation associations - State					
20	1,295,103	1,292,474	~99.80	Least Concern	13.32
24	263,148	263,129	~99.99	Least Concern	-
Beard vegetation associations - Bioregion					
20	1,174,259	1,171,631	~99.78	Least Concern	8.89
24	22,163	22,144	~99.91	Least Concern	-

* Government of Western Australia (2011)

** Department of Natural Resources and Environment (2002)

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

Methodology Department of Natural Resources and Environment (2002)
Government of Western Australia (2011)
GIS Database:
- IBRA WA (regions - subregions)
- 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

Based on the vegetation mapping by Holm (2012), the vegetation types '4a: Plains supporting eucalypt or acacia shrublands' and '5: Alluvial plains supporting chenopod shrublands' are associated with drainage lines. The condition of the vegetation type is classified as 'very good' to 'degraded' (Keighery, 1994; GIS Database).

There are no permanent watercourses or waterbodies within the application area. Surface drainage in the application area is through several ephemeral drainage lines (GIS Database), which flow during periods of intense rainfall north-easterly from the south and west via overland flow to off-site drainage tracts which flow into Lake Rebecca, 7 kilometres to the north-east (Holm, 2012). The vegetation type associated with the drainage lines is considered to be common and widespread within the subregion (Holm, 2012; GIS Database). Clearing of areas which contain riparian vegetation have the potential to cause localised erosion to the creek habitat and increase sediment discharge to drainage tracts down-slope, and ultimately to Lake Rebecca (Holm, 2012). Provided disturbance to riparian habitats is avoided or minimised where possible, and strict weed

hygiene procedures are followed, the proposed works are not expected to substantially impact any watercourses or wetlands. Potential impacts to riparian vegetation may be minimised through the implementation of a vegetation management condition.

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

Methodology Holm (2012)
Keighery (1994)
GIS Database:
- Geodata, Lakes
- Hydrography, Linear
- Mulgabbie 1.4 Orthomosaic ? Landgate 2003

(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 application area intersects the Deadman, Moriarty and Kirgella land systems (GIS Database).

The Deadman land system is described as calcareous plains adjacent to salt lake systems, supporting acacia shrublands with black oak overstoreys. This land system is generally not susceptible to soil erosion (Pringle et al., 1994).

The Moriarty land system is described as low greenstone rises and stony plains supporting halophytic and acacia shrublands with patchy eucalypt overstoreys. Slopes of low rises without protective stone mantles, alluvial plains and narrow drainage tracts are moderately susceptible to water erosion, particularly if perennial shrub cover is substantially reduced or the soil surface is disturbed. The vegetation of this land system is highly preferred for grazing by introduced and native animals rendering it susceptible to overgrazing and consequent degradation (Pringle et al., 1994).

The Kirgella land system is described as extensive sandplain, with scattered granite outcrop and fringing drainage foci and very sparse drainage tracts, supporting mainly spinifex hummock grasslands and mulga and mallee shrublands (Pringle et al., 1994). Pringle et al. (1994) did not identify soil erosion as a land management issue in the Kirgella land system. Holm (2012) identifies that the Kirgella land system has a low susceptibility to soil erosion.

The above land systems generally have a low erosion hazard, however, due to the tenements mining history and cattle grazing, the vegetation of the application area has been previously disturbed (Saracen, 2012). Due to the large area of native vegetation proposed to be cleared (250 hectares) potential land degradation impacts 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 Holm (2012)
Pringle et al. (1994)
Saracen (2012)
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 application area is not located within any conservation area (GIS Database). The nearest conservation area is Goongarrie National Park, located approximately 59 kilometres west of the application area (GIS Database).

Given the distance of the application area from Goongarrie National Park, the proposed clearing is not likely to provide a significant ecological linkage or fauna movement corridor and is not likely to impact the environmental values of the conservation area.

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

Methodology GIS Database:
- DEC Tenure

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

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

The application area is not located within a Public Drinking Water Source Area (GIS Database). The application areas are located within the proclaimed Goldfields groundwater area under the *Rights in Water and Irrigation Act 1914* (GIS Database). Any groundwater extraction and/or taking or diversion of surface water for the purposes other than domestic and/or stock watering is subject to licence by the Department of Water.

There are no permanent watercourses or water bodies within the application area (GIS Database). Several ephemeral drainage tracts transect the application area (GIS Database). These drainage tracts are dry for most of the year and only flow and hold surface water for short durations following significant rainfall events, where turbid water from intense rainfall events will flow to Lake Rebecca which is nearby the application area (Saracen, 2012; GIS Database).

Surface water (as sheet flow) flows east from breakaways and hills of underlying bedrock to the west to a broad drainage line east of the application area (Aquaterra, 2010). Surface water flow in the local area has been significantly modified by existing mining infrastructure. The Whirling Dervish Stage 1/2 waste rock dump and TSF block water flow from the west; this water is diverted around the Whirling Dervish waste dump and TSF via an existing drainage channel (Aquaterra, 2010; Saracen, 2012). The Western By-pass road design has been modified to minimise impact on vegetation type 5 which is associated with drainage lines and associated surface water flows (Saracen, 2012). The diversion drain to be constructed along the western margin of the By-pass road will divert water north to the drainage line north of the road into the vegetation type 5, and the drain will terminate in a spreading device made of coarse competent rock to slow and spread any water flow to minimise erosion and sediment loading in surface water (Saracen, 2012).

The application has a groundwater salinity that ranges from saline to hypersaline (6,930 - 120,000 milligrams/Litre Total Dissolved Solids (TDS)) (Saracen, 2012; GIS Database). The clearing of vegetation as a result of this proposal is therefore unlikely to result in any further deterioration in surface or groundwater quality in the local area.

There are no known groundwater dependent ecosystems within the application area (GIS Database). It is unlikely that Stygofauna are present within the application area as the ground water salinities range up to 120,000 milligrams/Litre TDS and there is no calcrete below the water table in the area which is not suitable habitat conditions for Stygofauna (Saracen, 2012).

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

Methodology Aquaterra (2010)
Saracen (2012)
GIS Database:
- Geodata, Lakes
- Groundwater Salinity, Statewide
- Hydrography, Linear
- Public Drinking Water Source Areas
- RIWI Act, Groundwater Areas

(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 experiences an arid climate, with mainly winter rainfall of an annual average rainfall of approximately 264.9 millimetres per year (CALM, 2002; BoM, 2013). Based on an average annual evaporation rate of 2,400 - 2,800 millimetres (BoM, 2013), any surface water resulting from rainfall events is likely to be relatively short lived.

Given the size of the area to be cleared (250 hectares) compared to the size of the Raeside-Ponton catchment area (11,589,532 hectares) (GIS Database) it is not likely that the proposed clearing will lead to an appreciable increase in run off, and subsequently cause or exacerbate the incidence or intensity of flooding.

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

Methodology BoM (2013)
CALM (2002)
GIS Database:
- Hydrographic Catchments - Catchments

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

Comments

There are no Native Title claims over the area under application. 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*.

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

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

The clearing permit application was advertised on 14 January 2013 by the Department of Mines and Petroleum inviting submissions from the public. One submission was received stating no objection to the proposal.

Methodology

- GIS Database:
- Aboriginal Sites of Significance
 - Native Title Claims - Determined by the Federal Court
 - Native Title Claims - Registered with the NNTT

4. References

- Aquaterra (2010) Carosue Dam Surface Water Management Upstream Catchment Plan; Memo prepared for Saracen Gold Mines, June 2010.
- BoM (2013) Climate Statistics for Australian Locations. A Search for Climate Statistics for Kalgoorlie-Boulder, Australian Government Bureau of Meteorology, viewed 17 January 2013, <http://reg.bom.gov.au/climate/averages/tables/cw_012038.shtml>.
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Murchison 1 (MUR1 - East Murchison subregion) Department of Conservation and Land Management, Western Australia.
- Coffey Environments (2010) Level 1 Vertebrate fauna survey for the Carosue Dam project, Saracen Gold. Report prepared for Saracen Gold Mines Pty Ltd. Appended.
- DEC (2013) NatureMap - Mapping Western Australia Biodiversity, Department of Environment and Conservation, viewed 17 January 2013, <<http://naturemap.dec.wa.gov.au>>.
- 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.
- Government of Western Australia (2011); 2011 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). WA Department of Environment and Conservation, Perth.
- Holm, A & Associates (Holm) (2012) Environmental Assessment: Tailings Storage Facility Expansion. Report prepared for Saracen Gold Mine, December 2012.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Metcalf, B & Bamford, M (2002) Vertebrate fauna of the proposed Carosue Dam - Safari haul road. Report for Sons of Gwalia Ltd, Perth, Western Australia.
- Pringle, H.J.R, Van Vreeswyk, A.M.E. and Gilligan, S.A. (1994) An inventory and condition survey of rangelands in the north-eastern Goldfields, Western Australia, Technical Bulletin No. 87., Department of Agriculture, South Perth, Western Australia.
- Saracen Gold Mines Pty Ltd (Saracen) (2012) Tailings Storage Facility Cell 3 - Clearing Permit Application, Supporting Information. Internal report, December 2012.
- Saracen Gold Mines Pty Ltd (Saracen) (2013) Additional Information to Assessing Officer Regarding CPS 5426/1 (E-mail). January, 2013.

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.