Government of Western Australia
Department of Mines and Petroleum

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3934/1

Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Saracen Gold Mines Pty Ltd**

1.3. Property details

Property: Mining Lease 31/3
Mining Lease 31/4
Mining Lease 31/5
Mining Lease 31/6
Mining Lease 31/76
Mining Lease 31/190
Miscellaneous Licence 31/11
Exploration Licence 31/621

Local Government Area: Shire of Menzies

Colloquial name: Million Dollar Project

1.4. Application

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

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description Beard vegetation associations have been mapped at a 1:250,000 scale for the whole of Western Australia. Two Beard vegetation associations have been mapped within the application area (GIS Database; Shepherd, 2007).

389: Succulent steppe with open low woodland; mulga over saltbush; and

400: Succulent steppe with open low woodland; mulga over bluebush (GIS Database; Shepherd, 2007).

The application area was surveyed by Botanica Consulting staff on the 14 and 15 July 2010 (Botanica Consulting, 2010). The following vegetation types were identified within the application area:

Creekline Vegetation - Upper-storey of *Acacia burkittii, Santalum lanceolatum* and *Santalum spicatum*. The mid-storey included *Eremophila longifolia*, *Acacia tetragonophylla* and *Maireana pyramidata*. The lower-storey included *Sida calyxhymenia*, *Maireana triptera* and *Cheilanthes sieberi* subsp. *sieberi.* Many germinants of *Asteraceae* sp. were found within this vegetation unit;

***Maireana pyramidata* Chenopod Shrubland -** Upper-storey comprised of *Eucalyptus torquate, Santalum lanceolatum, Acacia aneura, Acacia burkittii, Acacia tetragonophylla* and *Hakea preissii*. The middle canopy included *Maireana sedifolia, Maireana pyramidata, Pittosporum angustifolium, Themeda triandra* and *Eremophila longifolia*. The lower-storey included *Scaevola spinescens, Eremophila clarkei* and *Solanum ferocissimum*;

***Maireana sedifolia* Chenopod Shrubland -** Upper-storey comprised of *Santalum lanceolatum, Acacia aneura*, *Acacia burkittii, Acacia tetragonophylla* and *Hakea preisii*. The middle canopy included *Maireana sedifolia, Maireana pyramidata, Pittosporum angustifolium, Themeda triandra* and *Eremophila longifolia*. The lower-storey included *Scaevola spinescens, Eremophila clarkei* and *Solanum ferocissimum*;

Mulga Woodland - Upper-story comprised of *Acacia ramulosa, Acacia aneura, Acacia tetragonophylla* and *Casuarina pauper*. The middle canopy included *Maireana sedifolia, Maireana pyramidata, Maireana triptera*, *Themeda triandra* and *Eremophila longifolia*. The lower-storey included *Scaevola spinescens, Eremophila clarkei* and *Solanum ferocissimum*;

***Casuarina pauper* Woodland -** Upper-storey comprised of *Acacia aneura* and *Casuarina pauper*. The middle canopy included *Dodonaea lobulata, Exocarpos aphyllus, Maireana sedifolia, Maireana pyramidata*, *Hakea preissii* and *Eremophila forrestii*. The lower-storey included *Ptilotus obovatus* and *Poaceae* sp. (Botanica Consulting, 2010).

Clearing Description

The Million Dollar Project forms part of the Saracen Gold Mines Pty Ltd Carosue Dam Operations (Saracen Gold Mines Pty Ltd, 2010). The Million Dollar pit is located approximately 40 kilometres north of the Carosue Dam Operations processing plant and approximately 2 kilometres south of the Porphyry open pit (Saracen Gold Mines Pty Ltd, 2010). The existing Million Dollar Project consists of an open pit 50 metres wide, 300 metres long and approximately 28 metres deep, an associated waste rock dump, low grade stockpile and haul road to Porphyry (Saracen Gold Mines Pty Ltd, 2010). Three ore bodies, Million Dollar North, Million Dollar and Million Dollar South make up the Million Dollar resource.

Saracen Gold Mines Pty Ltd (2010) is applying to clear up to 200 hectares of native vegetation within an area of approximately 436 hectares to develop the Million Dollar Project. As part of the Million Dollar Project, Saracen Gold mines Pty Ltd intend to mine an open pit 1,500 metres long, 285 metres wide and up to 80 metres deep. Associated infrastructure will include a waste rock dump, run of mine (ROM) pad and settling dam for mine dewatering (Saracen Gold Mines Pty Ltd, 2010). The existing workshop, offices and go-bay at Porphyry will be relocated to the Million Dollar area and the existing haul road will be realigned (Saracen Gold Mines Pty Ltd, 2010).

Saracen Gold Mines Pty Ltd (2010) are also seeking to clear for ongoing exploration drilling south of the Porphyry Pit on two geological trends.

Vegetation Condition

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

Comment

The application area is located in the Eastern Goldfields region, approximately 89 kilometres south-east of Kookynie (GIS Database). The vegetation condition was derived from a vegetation survey conducted by Botanica Consulting (2010).

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 (MUR1) 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 sand plains with minimal dune development (CALM, 2002). It contains salt-lake systems associated with the occluded Paleodrainage system (CALM, 2002). This subregion has broad plains of red-brown soils and breakaway complexes as well as red sand plains (CALM, 2002). The vegetation is dominated by Mulga woodlands often rich in ephemerals, hummock grasslands, saltbush shrublands and *Halosarcia* shrublands (CALM, 2002).

The vegetation within the application area consists of Beard vegetation associations 389 and 400 which are common and widespread throughout the Goldfields region, with approximately 100% of the pre-European vegetation extent remaining (Shepherd, 2007; GIS Database). Botanica Consulting (2010) recorded 51 vascular plant taxa from 35 genera and 23 families during the vegetation survey of the application area. No Declared Rare Flora or Priority flora species were recorded within the application area (Botanica Consulting, 2010).

Four alien weed species were recorded within the application area (Botanica Consulting, 2010). These were: Saffron Thistle (*Carthamus lanatus*), Pie Melon (*Citrullus lanatus*), Wild Sage (*Salvia verbenaca*), and Pimpernel (*Lysimachia arvensis*) (Botanica Consulting, 2010). Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. This in turn can lead to greater rates of infestation and further loss of biodiversity if the area is subject to repeated fires. One of these species (Carthamus lanatus) is listed as a 'Declared Plant' species under the *Agriculture and Related Resources Protection Act 1976* by the Department of Agriculture and Food (DAFWA). This species is a Priority 3 weed species and therefore the infestation must be controlled in such a way that prevents the spread of seed or plant parts within and from the property on or in livestock, fodder, grain, vehicles and/or machinery, and all plants must be treated to destroy and prevent seed set (DAFWA, 2009). Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

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

Methodology

BotanicaConsulting (2010)
CALM (2002)
DAFWA (2009)
Shepherd (2007)
GIS Database:
- IBRA WA (regions - subregions)
- Pre-European vegetation

(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

According to Shepherd (2007) approximately 100% of the pre-European vegetation remains within the Murchison bioregion. Given the extent of native vegetation remaining in the local area and bioregion, the vegetation to be cleared does not represent a significant ecological linkage.

In 2002, a fauna survey of the proposed haul road between the Carosue Dam Operations and the Safari/Red October Operation, which encompassed part of the application area, was undertaken by Bamford Consulting Ecologists (2002). The field survey was conducted on 6-10 May 2002 (Bamford Consulting Ecologists, 2002).

Bamford Consulting Ecologists (2002) recorded seven broad habitat types as occurring within the survey area:

1. Breakaways;
2. Drainage Lines;
3. Dunefields;
4. Hills;
5. Salt Lakes;
6. Undulating Plains; and
7. Broad Valleys (Bamford Consulting Ecologists, 2002).

Analysis of aerial photography and imagery and a review of the vegetation associations found within the application area indicate that the proposed clearing area is comprised of the drainage lines, undulating plains and broad valley habitats (GIS Database; Bamford Consulting Ecologists, 2002).

The habitats recorded during the survey are considered to be typical to those found in the Goldfields region; however there are some patches of habitat likely to be disproportionately significant in enhancing local biodiversity (Bamford Consulting Ecologists, 2002). In particular the drainage line habitat is considered to provide dense vegetation utilised by a variety of bird species and may act as a refuge area during dry periods (Bamford Consulting Ecologists, 2002).

Although the clearing of vegetation and mining development will inevitably result in the loss of a number of fauna individuals at a local scale, clearing of vegetation within the application area will have a low risk of significantly impacting on:

- Fauna biodiversity at the genus, species, and ecosystem levels in a regional context;
- Terrestrial fauna in a regional context;
- Species of conservation significance;
- An ecosystem of high functional value; and
- An ecosystem that is important in a regional context (Bamford Consulting Ecologists, 2002).

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

Methodology

Bamford Consulting Ecologists (2002)
Saracen Gold Mines Pty Ltd (2010)
Shepherd (2007)
GIS Database:
- Edjudina 1.4m Orthomosaic 2003

(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 GIS databases there are no known records of Declared Rare Flora (DRF) within the application area or within 100 kilometres of the application area (GIS Database).

A flora survey was conducted over the application area by staff from Botanica Consulting on 12-13 July 2010 (Botanica Consulting, 2010). No DRF or Priority flora species were recorded within the application area (Botanica Consulting, 2010).

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

Methodology

Botanica Consulting (2010)
GIS Database:
- Declared Rare and Priority Flora List

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

Comments

Proposal is not likely to be at variance to this Principle

A search of available databases reveals that there are no Threatened Ecological Communities (TECs) within the application area (GIS Database). The nearest TEC is located approximately 280 kilometres north-west of the application area (Depot Springs Stygofauna Community) (DEC, 2006). At this distance there is little likelihood of any impact to the TEC from the proposed clearing.

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

Methodology

DEC (2006)
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 falls within the Murchison IBRA bioregion (GIS Database). Shepherd (2007) reports that approximately 100% of the pre-European vegetation remains in this bioregion.

The vegetation within the application area is recorded as Beard vegetation associations:

389: Succulent steppe with open low woodland; mulga over saltbush; and
400: Succulent steppe with open low woodland; mulga over bluebush (GIS Database; Shepherd, 2007).

According to Shepherd (2007) approximately 100% of these Beard vegetation associations remain within the Murchison bioregion (see table below).

	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%
IBRA Subregion - East Murchison	21,135,084	21,135,084	~100%	Least Concern	~1.39%
Beard vegetation associations - State					
389	622,461	622,461	~100%	Least Concern	~0.3%
400	190,823	190,823	~100%	Least Concern	N/A
Beard vegetation associations - Bioregion					
389	474,082	474,082	~100%	Least Concern	~0.31%
400	190,823	190,823	~100%	Least Concern	N/A

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

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

Methodology

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

According to available GIS Databases, there are no permanent wetlands or watercourses within the application area, however Lake Rebecca is located approximately 10 kilometres south-west of the application area (GIS Database).

Based on vegetation mapping conducted by Botanica Consulting (2010) one of the five vegetation associations found within the application area is associated with drainage areas.

Creekline Vegetation - Upper-storey of *Acacia burkittii, Santalum lanceolatum* and *Santalum spicatum*. The mid-storey included *Eremophila longifolia, Acacia tetragonophylla* and *Maireana pyramidata*. The lower-storey included *Sida calyxhymenia*, *Maireana triptera* and *Cheilanthes sieberi* subsp. *sieberi (*Botanica Consulting, 2010).

The Million Dollar deposit lies just south of a major drainage line which flows west into Lake Rebecca (Saracen Gold Mines Pty Ltd, 2010). The Million Dollar North ore body lies partially below this creek and development of the ore body will require some modification to the creek line (Saracen Gold Mines Pty Ltd, 2010).

Based on the above, the proposed clearing is at variance to this Principle. Saracen Gold Mines Pty Ltd (2010) have advised that disturbance to the drainage line will be minimised where practicable. Where impact to drainage line is unavoidable Saracen Gold Mines Pty Ltd (2010) has committed to the following;

- Surface Water Management Plan will be implemented to avoid ponding against waste rock dumps and other project facilities;
- Infrastructure will be placed as far as possible from natural drainage lines;
- Divert uncontaminated water away from potentially contaminated areas;
- Construct diversion drains to ensure that runoff from rainfall does not cause erosion; and
- Any diverted water is to be redirected to enter the natural drainage system clear of developed areas.

Methodology

Botanica Consulting (2010)
Saracen Gold Mines Pty Ltd (2010)
GIS Database:
- Hydrography, Linear
- Geodata, Lakes

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

Comments

Proposal may be at variance to this Principle

The application area has been surveyed by the Department of Agriculture and Food (Pringle et al, 1994). According to the available datasets the application area intersects the Gundockerta and Rainbow land systems (GIS Database).

The Gundockerta land system comprises of extensive, gently undulating, calcareous, stony plains, supporting bluebush shrublands (Pringle et al, 1994). Parts of this land system (saline plains and adjacent lower alluvial tracts) are susceptible to water erosion, particularly in areas where perennial shrub cover is substantially reduced and/or the soil surface is disturbed, though other units with stony mantles are inherently resistant (Pringle et al, 1994).

The Rainbow land system comprises of hardpan plains supporting mulga shrublands (Pringle et al, 1994). The system is generally not susceptible to erosion. However, the impedance of sheet flow can initiate soil erosion and cause water starvation and consequently the loss of vigour in vegetation downslope (Pringle et al, 1994).

The terrain of the Million Dollar area is generally flat to gently undulating, relatively low lying and covered mainly by thin superficial soils with occasional low hills of bedrock (Saracen Gold Mines Pty Ltd, 2010). Saracen Gold Mines Pty Ltd (2010) have advised that water flows will be managed to minimise disturbance to creek lines and minimise soil erosion.

Based on the above, the proposed clearing may be at variance to this Principle. There is a risk of wind and/or water erosion occurring should water flows be altered and/or areas remain exposed. Potential erosion impacts as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition to ensure large areas are not void of vegetative cover for extended periods.

Methodology

Pringle et al. (1994)
Saracen Gold Mines Pty Ltd (2010)
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 a conservation reserve (GIS Database). The nearest known conservation reserve is the Goongarrie National Park, located approximately 53 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 is not likely to be at variance to this Principle**
According to available databases, the application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database).

The groundwater salinity within the application area is approximately 3,000 - 7,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). Groundwater salinity increases with depth, with field values between 50,000 and 100,000 milligrams/Litre TDS at 50-70 metres depth and 80,000 to 200,000 milligrams/Litre TDS down to 150 metres (Saracen Gold Mines Pty Ltd, 2010). This is considered to be hypersaline. The proposed clearing is not likely to cause salinity levels within the application area to alter significantly.

Groundwater in the Million Dollar area was 30 metres below the surface prior to commencement of mining in 1998. The Million Dollar pit void will act as a groundwater sink and at least partially fill with water. It is likely that the water quality within the open pit will become more saline over time due to saline inflows and concentration of salts via evaporation (Saracen Gold Mines Pty Ltd, 2010). Saracen Gold Mines (2010) have advised that dewatering of the Million Dollar pit will be required and the water will be pumped to a turkey nest and then to Lake Rebecca.

There are no permanent or semi-permanent water bodies or watercourses within the application area (Saracen Gold Mines Pty Ltd, 2010; GIS Database). Lake Rebecca which lies approximately 10 kilometres south-west of the application area receives surface drainage from the surrounding country and very occasionally fills (Saracen Gold Mines Pty Ltd, 2010). Drainage within the application area consists of small ephemeral creeks and drainage lines and in some areas wide drainage flats (Saracen Gold Mines Pty Ltd, 2010).

The application area is located in an arid region, with mainly winter rainfall (CALM, 2002). With an average rainfall of approximately 232.4 millimetres/year and an annual pan evaporation rate of 2,400 millimetres/year (BoM, 2010), there is little surface flow during normal seasonal rains. The proposed clearing is not likely to cause the quality of surface water to deteriorate.

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

Methodology BoM (2010)
CALM (2002)
Saracen Gold Mines Pty Ltd (2010)
GIS Database:
- Public Drinking Water Source Areas
- Groundwater Salinity, Statewide
- Hydrography, Linear

(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 an average annual rainfall of 249.8 millimetres recorded from the nearest weather station at Menzies approximately 119 kilometres east-south-east of the application area (CALM, 2002; BoM, 2010). The application area also experiences a high average annual evaporation rate of approximately 2,400 millimetres (BoM, 2010).

The application area is located within the Raeside-Ponton catchment area (GIS Database). However, the size of the area to be cleared (200 hectares) in relation to the size of the Raeside-Ponton catchment area (11,589,533 hectares) (GIS Database) is not likely to increase the potential for flooding within the application area, local area or within the catchment.

The Million Dollar deposit lies just south of a major drainage line which flows west to Lake Rebecca, with the Million Dollar North resource partially under the margin of this drainage line (Saracen Gold Mines Pty Ltd, 2010; GIS Database). Saracen Gold Mines Pty Ltd (2010) advised that the drainage line to the north of Million Dollar is a major flood zone with high water flow during periods of significant rainfall.

A north-south bund diverts water flowing from the north down the eastern side of the Porphyry mining area into the broad creek system to the north of the Million Dollar Project, which significantly increased the water flow through the creek system (Saracen Gold Mines Pty Ltd, 2010). Saracen Gold Mines Pty Ltd (2010) have advised that an abandonment/diversion bund will be constructed around the Million Dollar open pit and will be

designed to minimise ponding against the bund and reduce erosion downstream.

The existing haul road between Porphyry and Million Dollar is currently built up and causes flooding between Porphyry and Million Dollar. Vegetation downstream of the haul road has been noticeably impacted by the reduction in water flow whilst the area upstream is noticeably boggy after rainfall (Saracen Gold Mines Pty Ltd, 2010). Saracen Gold Mines Pty Ltd (2010) have advised that the haul road will be lowered to form a floodway therefore reducing the current flooding on the southern half of the area.

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

Methodology

BoM (2010)
CALM (2002)
Saracen Gold Mines Pty Ltd (2010)
GIS Database:
- Edjudina 1.4m Orthomosaic 2003
- Hydrographic Catchments - Catchments

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

Comments

The clearing permit application was advertised on 13 September 2010 by the Department of Mines and Petroleum inviting submissions from the public. One submission was received in relation to this application regarding aboriginal heritage issues. A written response was provided on the matters raised.

There is one Native Title Claim (WC99_001) over the area under application. This claim has been registered with the National 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*.

There are no registered Aboriginal Sites of Significance within the application area (GIS Database). The nearest registered Aboriginal Site of Significance is located adjacent to 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.

Methodology

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

4. Assessor's comments

Comment

The application has been assessed against the clearing principles, planning instruments and other matters in accordance with s.51O of the *Environmental Protection Act 1986*, 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).

5. References

Bamford Consulting Ecologists (2002). Vertebrate fauna of the proposed Carosue Dam - Safari Haul Road. Report for Sons of Gwalia Ltd, Perth, Western Australia.

BoM (2010) Bureau of Meteorology Website - Climate Averages by Number, Averages for MENZIES. http://www.bom.gov.au/climate/averages/tables/cw_012052.shtml (Accessed 16 September 2010).

Botanica Consulting (2010) Level 1 Flora and Vegetation Survey (Tenements: M31/0003, M31/0004, M31/005, M31/0006, M31/0030, M31/0059, M31/0076, M31/0190, M31/0381, E31/0621, L31/0011). Prepared for Saracen Mineral Holdings Pty Ltd. Unpublished report dated July 2010.

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.

DAFWA (2009) Department of Agriculture and Food Website - List of Declared Plants December 2008. www.agric.wa.gov.au/content/PW/WEED/DECP/dec_plants_list.pdf (Accessed 7 October 2010).

DEC (2006) List of Threatened Ecological Communities on the Department of Environment and Conservation's Threatened Ecological Community (TEC) Database endorsed by the Minister for the Environment. Species and Communities Branch, Department of Environment and Conservation.

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.J.R., Van Vreeswyk, A.M.E., and Gilligan, S.A. (1994) An Inventory and Condition Survey of the North-Eastern Goldfields, Western Australia, Department of Agriculture, Western Australia.
Saracen Gold Mines Pty Ltd (2010) Million Dollar. Clearing Permit Application Supporting Documentation. Unpublished report dated August 2010.
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.

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.