



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 1519/4
Permit type: Purpose Permit

1.2. Proponent details

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

1.3. Property details

Property: Mining Lease 15/300
Mining Lease 15/1537
Mining Lease 15/1538
Miscellaneous Licence 15/276
Local Government Area: Shire of Coolgardie
Colloquial name: Cave Rocks Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 8 March 2012

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
<p>The area applied to clear has been broadly mapped at a scale of 1:250,000 as Beard Vegetation Associations:</p> <p>9: Medium woodland; Coral Gum (<i>Eucalyptus torquata</i>) & Goldfields Blackbutt (<i>E. lesouefii</i>); and</p> <p>936: Medium woodland; Salmon Gum (Shepherd, 2009).</p> <p>Botanica Consulting conducted a flora survey on the 26th of July 2006 of the vegetation occurring within a 10 metre strip either side of a 2.4 kilometre section of an existing dirt road accessing the Caves Rock mine from the Goldfields Highway (Botanica Consulting, 2006).</p> <p>Two vegetation groups were encountered within the survey area:</p> <p>1. <i>Eucalyptus stricklandii</i> woodland - the dominant species was <i>Eucalyptus stricklandii</i>. The midstorey comprised of <i>Atriplex nummularia</i>, <i>Eremophila interstans</i> subsp. <i>virgata</i>, <i>E. ionantha</i> and <i>Santalum acuminatum</i>, while the understorey comprised of <i>Olearia muelleri</i>, <i>Atriplex vesicaria</i>, <i>Halosarcia indica</i>, <i>Maireana georgei</i>, <i>Sclerolaena diacantha</i> and <i>S. ericantha</i>; and</p>	<p>The proposal is for the clearing of up to 15 hectares of native vegetation along an existing gravel road accessing the Cave Rocks mine from the Goldfields Highway (Botanica Consulting, 2006). This vegetation will require clearing in order to widen the existing road and provide a suitable haul road for vehicles servicing the proposed Cave Rocks mining operation.</p>	<p>Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).</p>	<p>The original proposal to clear 62.12 hectares of native vegetation was amended to 15 hectares upon recommendation by the Environmental Protection Authority (EPA).</p> <p>A section of the area proposed to be cleared falls within the Kambalda Nature Reserve (GIS Database). This reserve has been disturbed through historic mining and grazing activities, although stock have been excluded from the area for about 30 years.</p> <p>The Conservation Commission, which is the vesting body for the Kambalda Nature Reserve, has given its 'in principle' support for the Cave Rocks project to proceed. This outcome was reached after the proponent undertook consultation with stakeholders such as the Department of Environment and Conservation (DEC), Department of Industry and Resources (DoIR), EPA, Main Roads of Western Australia (MRWA), Water Corporation, Conservation Council of Western Australia, Coolgardie Shire, local pastoralists and the Kambalda community (St Ives Gold Mining Company Pty Ltd, 2006).</p>

Clearing permits CPS 1519/2 and CPS 1519/3 were both previously amended to change the report requirements. An application for an amendment to clearing

2. *Eucalyptus salmonophloia* woodland - the dominant species was *Eucalyptus salmonophloia*. The midstorey comprised of *Atriplex bunburyana*, *A. nummularia*, *Acacia jennerae*, *Eremophila interstans* subsp. *virgata*, *E. oldfieldii* subsp. *angustifolia* and *Santalum acuminatum*, while the understorey comprised of *Ptilotus exaltatus*, *P. obovatus*, *Atriplex vesicaria*, *Sclerolaena diacantha*, *S. eriakantha*, *Maireana georgei* and *Swainsona canescens* (Botanica Consulting, 2006).

Botanica Consulting (2006) advise that two weed species were recorded in the survey area: Mint Weed (*Salvia reflexa*) and Burr Medic (*Medicago polymorpha*).

permit CPS 1519/3 was submitted by St Ives Gold Mining Company Pty Ltd (SIGM) to DMP on 30 January 2012. SIGM has applied to extend the duration of the permit from 31 July 2012 to the 31 July 2017. The amount of clearing and the clearing area boundary that was previously approved will remain unchanged.

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 proposed clearing area is located in the Eastern Goldfields (COO3) Interim Biogeographic Regionalisation of Australia (IBRA) subregion (GIS Database). This is an area which has been described by CALM (2002) as having an exceptionally high diversity of endemic *Eucalyptus* species.

Botanica Consulting (2006) advise that the flora survey revealed diverse flora that occur across the bioregion and are not restricted to the area proposed to be cleared. The vegetation types found in the application area are wide ranging and not restricted to the proposed clearing area, with most species occurring throughout the surrounding region (Botanica Consulting, 2006). There is no evidence to suggest that the floral diversity of the proposed clearing area is higher than any other area in the surrounding region.

From a fauna perspective, the proposed clearing of habitat is likely to result in the loss of some of the sedentary species, however, more mobile species are expected to move to adjacent areas that contain similar habitat (ATA Environmental, 2006). Taking into account the quantity of similar habitat located in the vicinity of the site to be cleared, and that the area has already been used for mining purposes, the potential loss of species is not considered to be significant to the biodiversity of the region (ATA Environmental, 2006).

It is unlikely that the biodiversity at the site of this proposal would be considered outstanding, or of a higher diversity than other areas within the Eastern Goldfields IBRA subregion, the Shire of Coolgardie or the local area.

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

Methodology ATA Environmental (2006)
Botanica Consulting (2006)
CALM (2002)
GIS Database:
- IBRA WA (Regions - Sub Regions)

(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**

ATA Environmental were commissioned to undertake a Level 1 fauna assessment of the Cave Rocks project area (ATA Environmental, 2006). This assessment was done in accordance with the EPA Terrestrial Biological Surveys as an Element of Biodiversity Protection: Position Statement No. 3 (EPA, 2002), and the area covered by this assessment included that found along the access road which will require upgrading as part of the proposed Cave Rocks project expansion.

A site visit of the areas proposed to be cleared was conducted by ATA Environmental on 2 August 2006, with a follow-up visit held on 25 September 2006 (ATA Environmental, 2006). These reconnaissance surveys were used to identify fauna habitats so that data from other surveys in the bioregion could be more effectively used in this assessment.

A desktop search of the Western Australian Museum online database (FaunaBase) was used to develop a list of potential birds, reptiles, mammals and amphibians in the general project area (ATA Environmental, 2006). The search area was bounded by latitudes 30.88 and 31.88S, and longitudes 121.31 and 122.31E. In addition, a search of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* online

database was also undertaken. A search of the DEC's Threatened and Priority Fauna database had previously been undertaken to identify potential Threatened or Priority species in the region as part of an earlier survey for the larger area.

Of the species listed under the *Environment Protection and Biodiversity Conservation Act 1999*, only the Rainbow Bee-eater (*Merops ornatus*) and Fork-tailed Swift (*Apus pacificus*) are likely to be found in the area. These migratory species are widespread and are unlikely to be significantly impacted on by the proposed land clearing. Of those species listed under the *Wildlife Conservation Act 1950* only the Peregrine Falcon (*Falco peregrinus*), Major Mitchell's Cockatoo (*Cacatua leadbeaterii*) and the Carpet Python (*Morelia spilota imbricata*) are likely to be found in the area. If the two bird species utilise the area, then they will probably move to adjacent areas once land clearing commences and are unlikely to be significantly impacted. In the event that Carpet Pythons are in the area to be cleared, it is likely that they will be lost during the clearing process, but this will not have a significant impact on this species in a bioregional context.

The proposed clearing of habitat is likely to result in a loss of some of the sedentary species, however, more mobile species are expected to move to adjacent areas that contain similar habitat (ATA Environmental, 2006). Based on the information considered in this assessment, historic mining activity and taking into account the quantity of similar habitat located in the vicinity of the site to be cleared, this loss of species is not considered to be significant to the biodiversity of the region.

ATA Environmental (2006) further advise that the faunal assemblage that is present and which will be impacted on during the clearing of the proposed project area is unlikely to be different to that found in similar habitat located elsewhere in the region. On this basis, it can be concluded that the project area does not contain habitat of high ecological significance from a faunal perspective or contain faunal assemblages that are ecologically significant.

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

Methodology ATA Environmental (2006)
EPA (2002)

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

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

According to the available Department of Environment and Conservation (DEC) datasets, no Priority or Declared Rare Flora (DRF) species are known to occur within the area under application (GIS Database).

Botanica Consulting was commissioned on the 26th of July 2006 to conduct a flora survey of the vegetation occurring within a 10 metre strip either side of a 2.4 kilometre section (between coordinates GDA94 51 362825 6546002 and 51 365087 6545623) of the existing dirt road accessing the Cave Rocks mine from the Goldfields Highway (Botanica Consulting, 2006).

Prior to the field survey, a search of the DEC's Threatened flora database was conducted to include the area proposed be cleared as part of this application (Botanica Consulting, 2006). Vegetation descriptions of threatened flora provided in the Threatened Flora database search results reveal three species that could possibly occur in the *Eucalyptus salmonophloia* woodland vegetation association (Botanica Consulting, 2006):

1. *Eremophila praecox* (Priority 1) - occurs approximately 44 kilometres south-east of the survey area in a *Eucalyptus salmonophloia* and *E. lesouefii* woodland. It is possible for this species to occur in the survey area, however due to the high disturbance present in the survey area and the exhaustive nature of the survey undertaken, this species was not recorded and is unlikely to occur in the survey area;

2. *Eucalyptus jimberlanica* (Priority 1) - occurs specifically near Jimberlana Hill just north of Norseman. The vegetation of this location is associated with hill slopes, however, no hill slopes occur in the survey area and Botanica Consulting is confident based on local knowledge of the region that this species is not likely to occur in the survey area; and

3. *Eucalyptus brockwayi* (Priority 3) - associated with gentle slopes and rocky outcrops, however, no rocky outcrops or gentle slopes occur in the survey area. As a result, Botanica Consulting is confident based on local knowledge of the region that this species is not likely to occur in the survey area.

Botanica Consulting (2006) advise that the search of the Threatened Flora database also revealed one Priority Flora species that could possibly occur in the *Eucalyptus stricklandii* woodland vegetation association:

- *Prostanthera splendens* (Priority 1) - associated with granitic breakaways. However, as breakaways are not present in the survey area, Botanica Consulting is confident based on local knowledge of the region that this species is not likely to occur in the survey area.

No Priority or Declared Rare Flora species were recorded from within the area surveyed (Botanica Consulting, 2006). Whilst the survey reveals a broad diversity of flora, the species recorded are not restricted to the project

area and are well represented at a regional scale.

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

Methodology Botanica Consulting (2006)
GIS Database:
- Threatened and Priority Flora

(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) identified within the project area (GIS Database). The nearest known TEC is approximately 295 kilometres south-east of the area under application.

No known TECs are listed in the Coolgardie 3 - Eastern Goldfields IBRA subregion (CALM, 2002), and Botanica Consulting (2006) advise that no Threatened Ecological Communities listed under the *Environment Protection and Biodiversity Conservation Act 1999* were identified within the project area.

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

Methodology Botanica Consulting (2006)
CALM (2002)
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 clearing application area falls within the Coolgardie Interim Biogeographic Regionalisation for Australia (IBRA) bioregion in which approximately 98.4% of the pre-European vegetation remains (see table) (Shepherd, 2009; GIS Database). This gives it a conservation status of 'Least Concern' according to the Bioregional Conservation Status of Ecological Vegetation Classes (Department of Natural Resources and Environment, 2002).

The vegetation of the clearing application area has been mapped as Beard vegetation associations:

9: Medium woodland; Coral Gum (*Eucalyptus torquata*) and Goldfields Blackbutt (*Eucalyptus lesouefii*); and 936: Medium woodland; Salmon Gum (Shepherd, 2009; GIS Database).

According to Shepherd (2009) approximately 99.8% and 97.0% of Beard vegetation associations 9 and 936 remains at the state level, respectively. Approximately 99.8% and 100% remains at a bioregion level for Beard vegetation associations 9 and 936, respectively (see table). These vegetation associations would be given a conservation status of 'Least Concern' at both a state and bioregional level (Department of Natural Resources and Environment, 2002).

	Pre-European Area (ha)*	Current Extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Coolgardie	12,912,204	12,707,873	~98.4	Least Concern	10.9
Beard Veg Assoc. – State					
9	240,509	239,928	~99.8	Least Concern	1.3
936	698,066	678,066	~97.0	Least Concern	2.2
Beard Veg Assoc. – Bioregion					
9	240,442	239,867	~99.8	Least Concern	1.3
936	586,792	586,791	~100	Least Concern	1.2

* 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 (2002)
Shepherd (2009)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- 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 not likely to be at variance to this Principle

There are no permanent watercourses or wetlands in close proximity to the proposed clearing area, although an ephemeral watercourse, the Merougil Creek, lies immediately north of the proposed haul road extension (GIS Database). St. Ives Gold Mining Company Pty Ltd (SIGM) (2006) advise that ephemeral creeks only flow following large episodic rainfall events such as tropical cyclones and associated rain bearing depressions.

The vegetation survey conducted by Botanica Consulting (2006) indicates that the vegetation in the proposed clearing area is not riparian, but is in fact common to a variety of habitats in the local and regional area. Furthermore, the vegetation of the proposed clearing area is not likely to be acting as a buffer for the Merougil Creek. An adequate buffer will still exist between the creekline and the haul road following the proposed clearing.

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

Methodology Botanica Consulting (2006)
SIGM (2006)
GIS Database:
- Geodata, Lakes
- Hydrography, Linear
- Rivers

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

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

The regional topography surrounding the Cave Rocks project area is gently undulating with occasional ranges of low hills. Saline and sub-saline soils are common adjacent to drainage channels and salinas. Exploration drilling within the Cave Rocks project area has failed to encounter groundwater, with salinities of groundwater in the region generally in the range of 50,000 to greater than 300,000 milligram/Litre Total Dissolved Solids (SIGM, 2006). It is therefore expected that the clearing associated with this proposal will not increase either on-site, or off-site land salinisation.

The Department of Agriculture and Food Western Australia (DAFWA) (2007) advise that most of the area to be cleared has been surveyed and mapped to be Gumland land system with a relatively small area at the western end of the proposed haul road being Moriarty land system.

The land unit within the Gumland land system proposed to be cleared is likely to be the alluvial plain land unit. It is a level plain, receiving sheet through-flow after heavy rains. The soils are likely to be calcareous loams and red duplex soils supporting bluebush (*Maireana sedifolia*) with scattered Eucalypts. The soil erosion risk is likely to be low (DAFWA, 2007).

The drainage floor land unit of the Moriarty land system is likely to support Eucalypt woodland over Chenopod shrubs on red loamy earth soils. Soils of the Moriarty land system are not particularly prone to soil erosion.

Based on the above, the proposal is not likely to be at variance to this Principle (DAFWA, 2007).

Methodology DAFWA (2007)
SIGM (2006)

(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 area applied to clear is partially located within the Kambalda Nature Reserve, a 3,700 hectare 'C' Class reservation (GIS Database).

The Conservation Commission, which is the vesting body for the Kambalda Nature Reserve, has given its 'in principle' support for the Cave Rocks project to proceed. This outcome was reached after the proponent undertook consultation with stakeholders such as the DEC, Department of Industry and Resources (DoIR) ,

Environmental Protection Authority (EPA), Main Roads of Western Australia (MRWA), Water Corporation, Conservation Council of Western Australia, Coolgardie Shire, local pastoralists and the Kambalda community (SIGM, 2006).

SIGM have committed to conservation offset measures to ensure no net loss of biodiversity and conservation values occur as a result of the proposed clearing and subsequent mining operations. Such measures include:

- A commitment to take a lead role in facilitating the formation and coordination of a Kambalda Regional Weed and Feral Animal Abatement Working Group and the implementation of the actions determined by this working group;
- Committing to infill and rehabilitate two disused ex-pastoral dams within the Kambalda Timber Reserve;
- Stabilisation and rehabilitation of the current Cave Rocks waste dump with a post-mining plan for incorporation into the surrounding land use purpose of nature conservation; and
- A weed management program will be implemented within the Cave Rocks area by SIGM. This program will focus on controlling outbreaks of weeds (particularly Maltese cocksbur).

DEC (2006) considers that overall, the offsets being proposed by SIGM and the commitments given in the Cave Rocks facilitation plan are acceptable and consistent with the level of proposed impacts on the Kambalda Timber Reserve and Kambalda Nature Reserve.

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

Methodology DEC (2006)
SIGM (2006)
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 proposed clearing is not within a Public Drinking Water Source Area (PDWSA) (GIS Database). There are no watercourses in the proposed clearing area (GIS Database). The Merougil Creek (an ephemeral watercourse) extends along the northern side of the existing haul road. The proposed clearing area does not include the bed or banks of this creekline. It is unlikely that the proposed clearing will have any impact upon water quality or flow regimes of the Merougil Creek, or any other drainage feature off site.

Exploration drilling in the Cave Rocks area has not encountered any groundwater (SIGM, 2006). Hydrogeological investigations have revealed that there are no appreciable aquifers or aquitards in the area (SIGM, 2006). The proposed clearing is therefore not likely to have any impact upon groundwater levels, quality or groundwater-dependent ecosystems.

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

Methodology SIGM (2006).
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 average annual rainfall at Cave Rocks is 248 millimetres, whilst average annual evaporation is 2,342 millimetres (SIGM, 2006). It is therefore expected that there would be little surface water flow during normal seasonal rains. Ephemeral creeks such as Merougil Creek flow following significant episodic rainfall events, eventually reporting to nearby Lake Lefroy (SIGM, 2006). Numerous ephemeral creek systems feed into this salt lake, which acts as a basin to retain floodwaters during times of significant rainfall.

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

Methodology SIGM (2006)

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

Comments

Clearing permits CPS 1519/2 and CPS 1519/3 were both previously amended to change the report requirements. An application for an amendment to clearing permit CPS 1519/3 was submitted by St Ives Gold Mining Company Pty Ltd (SIGM) to DMP on 30 January 2012. SIGM has applied to extend the duration of the permit from 31 July 2012 to the 31 July 2017. The amount of clearing and the clearing area boundary that was previously approved will remain unchanged.

There is one Native Title Claim (WC98/27) over the area under application (GIS Database). 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 is one 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.

In March 2006, SIGM commissioned a Social Impact Assessment (SIA) of their Kambalda operations, including Cave Rocks, as part of their ongoing stakeholder consultation. The aim of the SIA was to ascertain SIGM's impacts on their stakeholders and ways forward for further social improvement (SIGM, 2006). Stakeholder consultation relating specifically to the Cave Rocks project followed the SIA, with the main stakeholders including the Department of Industry and Resources (DoIR), Department of Environment and Conservation (DEC), Coolgardie Shire and the Mount Monger Pastoral Station (SIGM, 2006).

On 11 December 2006, the Conservation Commission met with the DoIR, SIGM and the DEC to discuss the Cave Rocks Mining Proposal. Following this meeting, the Conservation Commission gave their 'in principle' support for the proposal to proceed. On 14 December 2006, the Environmental Management Branch of the DEC advised the Environmental Protection Authority Service Unit that from a DEC perspective, concerns regarding potential impacts for the proposal to result in a net loss of biodiversity and conservation values had largely been addressed. Accordingly, assessment of the proposal under Part IV of the *Environmental Protection Act 1986* was deemed not necessary.

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 SIGM (2006)
GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims - Registered with the NNTT

4. References

- ATA Environmental (2006) Fauna Assessment: St Ives Cave Rocks Satellite Pit, Waste Dump and Haul Road. Report Prepared by ATA Environmental, October 2006.
- Botanica Consulting (2006) Vegetation Survey of the Cave Rocks Proposed Satellite Pit, Waste Dump (M15/300) & Haul Road (L15/214, L15/61). Unpublished Report for St Ives Gold Mine (SIGM) Goldfields Limited, Prepared by Botanica Consulting, August 2006.
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Coolgardie 3 (COO3 - Eastern Goldfields Subregion).
- DAFWA (2007) Land degradation assessment report. Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR), received 18 January 2007. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia.
- DEC (2006) Biodiversity advice for land clearing application. Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR), received 20 December 2006. Environmental Management Branch, Department of Environment and Conservation, 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.
- EPA (2002) Terrestrial Biological Surveys as an element of biodiversity protection. Position Statement No. 3. March 2002. Environmental Protection Authority, Western Australia.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- 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.
- St Ives Gold Mining Company Pty Ltd (2006) Mining Proposal - Cave Rocks Project: Underground and Open Pit Operations.

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	Environmental 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.

