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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3315/3
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Integra Mining Limited**

1.3. Property details

Property: Mining Lease 25/133
Mining Lease 25/347
Local Government Area: City of Kalgoorlie-Boulder
Colloquial name: Randalls Gold Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 29 March 2012

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; Shepherd, 2009):

468: Medium woodland; salmon gum & Goldfields blackbutt; and

501: Medium woodland; Goldfields blackbutt.

Outback Ecology undertook a vegetation survey over the application area during June and October 2009. The following vegetation communities were recorded within the application area (Outback Ecology, 2009a):

EglM: *Eucalyptus griffithsii* Woodland, *Eucalyptus lesouefii*, *Myoporum platycarpum* Scattered Stands over *Maireana sedifolia* Low Open Shrubland;

EslMs: *Eucalyptus salmonophloia, Eucalyptus lesouefii* Open Forest over *Eremophila oldfieldii subsp. oldfieldii* Scattered Low Trees over *Maireana sedifolia*, *Tecticornia* sp. Low Shrubland;

AqMtp: *Acacia quadrimarginea* Low Woodland over *Maireana triptera*, *Maireana pyramidata* Low Open Shrubland;

EgEsp: *Eucalyptus griffithsii* (Low) Open Forest over *Eremophila* spp. Tall Open Shrubland/Scattered Shrubs over *Senna artemisioides* subsp. *filifolia* Scattered Shrubs/Open Shrubland over *Scaevola spinescens*, *Olearia muelleri* Low Open Shrubland;

EgSa: *Eucalyptus griffithsii* Woodland over *Senna artemisiodes* subsp. *filifolia*, *Eremophila decipiens* subsp. *decipiens* Open heath/Shrubland over Scattered Low Shrubs;

EsCo: A mosaic of *Eucalyptus salmonophloia* Scattered Trees over *Atriplex nummularia* subsp. *spathulata, Acacia colletioides* Tall Open Shrubland over Scattered Low Shrubs and *Casuarina obesa* over *Maireana sedifolia* over Scattered Low Shrubs and Herbs;

EsEl: *Eucalyptus salmonophloia (Eucalyptus lesoufii)* Scattered Trees to Woodland over *Senna artemisioides* subsp. *filifolia, Acacia colletioides* Shrubland/Tall Shrubland over Scattered Low Shrubs;

Ab: *Acacia burkittii*, *Eremophila oldfieldii* subsp. *oldfieldii* tall Open Shrubland over *Eremophila*

gibbosa, *Dodonaea lobulata* Open Shrubland over scattered Herbs; and

EoS: *Eremophila oldfieldii* subsp. *oldfiledii* Scattered Tall Shrubs over *Senna artemisioides* subsp. *filifolia*, *Eremophila glabra* subsp. *glabra*, *Dodenaea lobulata* Shrubland.

Clearing Description

Integra Mining has applied to clear up to 203 hectares within an application area of approximately 460.1 hectares for the purpose of expanding mining operations at the Randalls Gold Project. This includes the construction of a pit and waste landform at the Salt Creek deposit and the expansion of the existing pit and waste landform at the Maxwells deposit (Outback Ecology, 2009a). The application areas are located approximately 35 and 50 kilometres east, north-east of Kambalda, respectively (GIS Database). Clearing will be by mechanical means.

Vegetation Condition

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

To

Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).

Comment

The vegetation condition was assessed by botanists from Outback Ecology. Three weed species were recorded within the application area (Outback Ecology, 2009a).

Clearing permit CPS 3315/1 was granted by the Department of Mines and Petroleum (DMP) on 19 November 2009 and was valid from 19 December 2009 to 19 December 2011. The clearing permit authorised the clearing of 181.4 hectares of native vegetation. An application to amend the permit was received by DMP on 24 November 2011 for an extension to the duration of the permit by two years. Clearing permit CPS 3315/2 was granted on 16 December 2011. An application to amend clearing permit CPS 3315/2 was submitted to DMP on 17 January 2012 to increase the amount of clearing to 203 hectares. The clearing permit boundary will remain the same. The additional clearing is not likely to have significant additional environmental impacts.

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 is located within the Eastern Goldfields subregion of the Coolgardie Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). At a broad scale, vegetation can be described as Mallees, *Acacia* thickets and shrub-heaths on sandplains with diverse *Eucalyptus* woodlands occurring around salt lakes, on ranges and in valleys (CALM, 2002).

Eucalyptus woodlands have been identified as having a high species and ecosystem diversity within the Eastern Goldfields bioregion (CALM, 2002). Vegetation communities comprising Eucalypt woodlands have been identified within the application area (Outback Ecology, 2009a).

A flora and vegetation survey was undertaken by Outback Ecology over 23 - 26 July and 16 - 21 October 2008. This survey identified nine different vegetation communities within the application area (Outback Ecology, 2009a). The condition of these vegetation types ranged from 'excellent' to 'degraded' (Outback Ecology, 2009a). Much of the application area has been degraded by over grazing and previous mining activities. One of the vegetation types recorded within the survey area, directly adjacent to the application area, has been described as the Priority Ecological Community (PEC) 'Mt Belches *Acacia quadrimarginea*/*Ptilotus obovatus* banded ironstone community' (Outback Ecology, 2009a). The waste landform at Maxwells has been designed to avoid all the mapped PECs and management measures will be implemented to prevent offsite impacts to the vegetation communities (Integra Mining Limited and Outback Ecology, 2009). Apart from the PEC, the vegetation within the application is typical of that in the Goldfields and is well represented outside the application area (Outback Ecology, 2009a).

The flora survey of the application area recorded 118 species from 60 genera and 20 families at the Salt Creek project area and 65 species from the 35 genera and 17 families at the Maxwells project area (Outback Ecology, 2009a). No Threatened Flora or Priority Flora was recorded during the survey (Outback Ecology, 2009a). Three weed species were within the application area: Wild Sage (*Salvia verbenaca*), Small Burr Medic (*Medicaga minima*) and *Oncosiphon suffruticosum* (Outback Ecology, 2009a). The presence of these introduced weed species lowers the biodiversity value of the area proposed to be cleared. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

A number of fauna surveys have been conducted over the application area. The latest survey was conducted by Outback Ecology during 6 - 18 November 2008. The previous surveys recorded 17 mammal, 29 reptile and 32 bird species at the Salt Creek project area (Outback Ecology, 2009b). The latest fauna survey at Salt Creek recorded 14 mammal, 40 reptile and 57 bird species (Outback Ecology, 2009b). The fauna habitat present is

well represented throughout the Goldfields region, and the application area is not likely to have a higher level of faunal diversity than surrounding areas (Outback Ecology, 2009b).

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

Methodology

CALM (2002)
Integra Mining Limited and Outback Ecology (2009)
Outback Ecology (2009a)
Outback Ecology (2009b)
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

A number of Level 1 and 2 fauna surveys have been conducted over the application area (Outback Ecology, 2009b). The latest survey was conducted by Outback Ecology during 6 - 18 November 2008.

The major habitat identified within the application area was 'Blackbutt over open shrubland' and 'Salmon gum woodland over open shrub' (Outback Ecology, 2009b). The habitat present within the application area is considered to be widespread within the region (Outback Ecology, 2009b). Vegetation within the application area showed signs of degradation from feral animals, in particular feral goats (Outback Ecology, 2009a).

Three fauna species of conservation have been recorded within the application area: Rainbow Bee-eater (*Merops ornatus*), White-browed Babbler (*Pomatostomus superciliosus ashbyi*) and Western Rosella (*Platycercus icterotis xanthogenys*) (Outback Ecology, 2009b).

The Rainbow Bee-eater is listed as a migratory bird by the Japan-Australia Migratory Bird Agreement (JAMBA) and is protected under the *Environment Protection and Biodiversity Conservation Act 1999*. The Rainbow Bee-eater is found across most of Australia and inhabits open forests and woodlands, shrublands and various cleared or semi-cleared habitats (DEWHA, 2009). Given this species migratory habits and large distribution, the application area is not likely to represent significant habitat for the Rainbow Bee-eater.

The White Browed Babbler (DEC Priority 4 listing) is found mainly in the arid and semi arid zones south of the Tropic of Capricorn (Johnstone and Storr, 2004). It usually inhabits the edges of most types of thicket and scrub, including mulga, wattle and other Acacia thickets, and shrubby understorey of Eucalypt and Casuarina woodlands (Johnstone and Storr, 2004). Given this species mobility and that the habitat in the application area is well represented within the region, the proposed clearing is not likely to represent significant habitat for the White Browed Babbler.

The Western Rosella (Schedule 1 - fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice 2012*) is found in the semi-arid southern interior (Johnstone and Storr, 2004). It occurs mainly in Eucalypt and Casuarina woodland and scrubs, especially Wandoo and Salmon Gum woodlands (Johnstone and Storr, 2004). Given this species mobility and that the habitat in the application area is well represented within the region, the proposed clearing is not likely to represent significant habitat for the Western Rosella.

An old disused Malleefowl (*Leipoa ocellata*) (Schedule 1 - fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice 2012* and Vulnerable under the *EPBC Act 1999*) mound has been recorded near the Maxwells project area (Outback Ecology, 2009b). A targeted Malleefowl survey was carried out by Outback Ecology. No mounds were found and due to the lack of leaf litter which is required for construction, the Malleefowl is not likely to utilise the application area (Outback Ecology, 2009b).

There is the potential for other fauna species of conservation significance to occur within the application area (Outback Ecology, 2009b). However, given that the habitat present is well represented throughout the region and the application area has suffered degradation from feral grazing, the application area is not likely to represent significant habitat for native fauna species.

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

Methodology

DEWHA (2009)
Johnstone and Storr (2004)
Outback Ecology (2009a)
Outback Ecology (2009b)

(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 recorded Threatened Flora or Priority Flora species within the application area (GIS Database). Outback Ecology conducted a flora survey over the application area during 23 - 26 July 2008 and 16 - 21 October 2008. No Threatened or Priority Flora were recorded within the application area (Outback Ecology, 2009a).

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

Methodology

Outback Ecology (2009a)
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

According to available databases there are no known Threatened Ecological Communities (TECs) within the application area (GIS Database). No vegetation communities described as a TEC were recorded during the botanical survey of the application area (Outback Ecology, 2009a). One vegetation community representing a Priority Ecological Community (PEC) was recorded within the survey area and directly adjacent the application area (Outback Ecology, 2009a).

The Mt Belches *Acacia quadrimarginea*/*Ptilotus obovatus* banded ironstone community is listed as a Priority 3 PEC (DEC, 2008). A Priority 3 PEC is defined as a community made up of large, and/or widespread occurrences, that may or not be represented in the reserve system, but is under threat of modification across much of its range from processes such as grazing by domestic and/or feral stock, and inappropriate fire regimes (DEC, 2007).

This community occurs within the central-southern section of the Randall Timber Reserve near the Maxwells project area (Outback Ecology, 2009a). Although this community is described as occuring on it, there is evidence to suggest that it may not be limited to banded ironstone (Outback Ecology, 2009a). The community recorded during the flora survey was generally found to be in 'poor' condition, and the understorey showed signs of severe grazing pressure from stock, feral goats and rabbits (Outback Ecology, 2009a). Approximately 2.6 hectares of this community occurs adjacent the application area which represents approximately 1.35% of the known extent (Integra Mining Limited and Outback Ecology, 2009; Outback Ecology, 2009a). The waste landform at Maxwells has been designed to avoid all the mapped PECs and management measures will be implemented to prevent offsite impacts to the vegetation communities (Integra Mining Limited and Outback Ecology, 2009).

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

Methodology

DEC (2007)
DEC (2008)
Integra Mining and Outback Ecology (2009)
Outback Ecology (2009a)
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 Coolgardie Interim Biogeographic Regionalisation of Australia (IBRA) bioregion within which approximately 98.2% of the Pre-European vegetation remains (see table) (GIS Database; Shepherd, 2009).

The vegetation of the application area has been mapped as:

- Beard Vegetation Association 468: Medium Woodland; Salmon Gum & Goldfields Blackbutt; and
- Beard Vegetation Association 501: Medium woodland; Goldfields Blackbutt (GIS Database).

According to Shepherd (2009) approximately 100% of Beard Vegetation Associations 468 and 501 remains at both a state and bioregional level. Therefore, the area proposed to be cleared does not represent a significant remnant of native vegetation within an area that has been extensively cleared.

While a small percentage of the vegetation types within the Coolgardie bioregion are adequately protected within conservation reserves, the bioregion remains largely uncleared. As a result, the conservation of

vegetation associations within the bioregion is not likely to be impacted by this proposal.

	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	~98.42	Least Concern	~10.87
Beard veg assoc. – State					
468	592,022	592,022	~100	Least Concern	~4.28
501	48,022	48,022	~100	Least Concern	-
Beard veg assoc. – Bioregion					
468	583,358	583,358	~100	Least Concern	~4.28
501	43,939	43,939	~100	Least Concern	-

* Shepherd (2009)
** Department of Natural Resources and Environment (2002)

The vegetation within the application area is not considered to be a remnant of native vegetation in an area that has been extensively cleared.

Based on the above, the proposal 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 at variance to this Principle**
According to available databases, there are two ephemeral watercourses within the application area (GIS Database). The vegetation survey did not identify any vegetation types associated with a watercourse within the application area (Outback Ecology, 2009a).

Given the application area includes minor non-perennial watercourses, the proposed clearing is at variance with this Principle.

Aerial imagery shows that the ephemeral watercourses have been previously disturbed by mining activities (GIS Database). Given these watercourses have already been largely impacted by previous mining, the proposed clearing is not likely have a significant impact on vegetation growing near these watercourses.

The ephemeral watercourse Salt Creek lies immediately adjacent to the application area (Outback Ecology, 2009a). Whilst this watercourse will not be directly impacted by the proposed clearing, it has been identified that it may potentially be impacted by such things as changes to surface water quality and alterations to the flow regime during and following rainfall events (Outback Ecology, 2009a). Measures such as rock armouring parts of the waste landform and encapsulating any potential acidic or unstable material will be implemented to minimise the impacts to Salt Creek (Outback Ecology, 2009a).

Methodology Outback Ecology (2009a)
GIS Database:
- Hydrography, Linear
- Lake Lefroy 1.4m Orthomosaic - Landgate 2002

(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 application area is located within the Kambalda Soil-Landscape Zone (Tille, 2006). This zone is characterised by flat to undulating plains (with hills, ranges and some salt lakes and stony plains) on greenstone and granitic rocks of the Yilgarn Craton (Tille, 2006).

Soils within the eastern part of the application area have been described as being sandy and appear to be well drained (Outback Ecology, 2009a). The pH of the surface soil within the application area ranges from 6.0 - 7.5 and there is no known occurrence of acid sulphate soils (CSIRO, 2009).

The application area has an annual evaporation rate of over 8 times the average annual rainfall (GIS Database). Based on this information, recharge to the groundwater would be expected to be minimal. The soils within the application area are generally saline to extremely saline due to their proximity to the salt lake, Lake Lefroy (Outback Ecology, 2009c). Given this, the proposed clearing is not likely to result in changes to salinity within the application area.

Based on the above, the proposed clearing is not likely to be at variance to this Principle. Potential impacts from land degradation as a result of the proposed clearing may be minimised by the implementation of staged clearing and vegetative material and topsoil retention conditions.

Methodology
CSIRO (2009)
Outback Ecology (2009a)
Outback Ecology (2009c)
Tille (2006)
GIS Database:
- Evaporation Isopleths
- Rainfall, Mean Annual

(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

According to available databases, the application area is partly within the Randalls Timber Reserve (GIS Database). The condition of the vegetation in Randalls Timber Reserve has been previously degraded by stock and feral animals (Outback Ecology, 2009a). Additionally, the application area within the Randalls Timber Reserve has been mined previously. The DEC considers that the project may be managed adequately under the *Mining Act 1978* (DEC, 2009). Given the application area within the Randalls Timber Reserve has been previously degraded by mining and grazing, the proposed clearing is not likely to have an impact on the environmental values of Randalls Timber Reserve.

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

Methodology
DEC (2009)
Outback Ecology (2009a)
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 average annual rainfall within the application area is 300 millimetres and the average annual evaporation rate is 2,600 millimetres (GIS Database). Therefore, during normal rainfall events surface water in the application area is likely to evaporate quickly. However, substantial rainfall events create surface sheet flow which is likely to have a higher level of sediments. During normal rainfall events, the proposed clearing would not likely lead to an increase in sedimentation of watercourses within the application area.

The groundwater salinity within the application area ranges from 16,900 - 96,000 milligrams per litre of Total Dissolved Solids (TDS) (Coffey Geotechnics, 2008; Outback Ecology, 2009a). This is considered to be saline to hypersaline. Given the groundwater is already saline, any clearing within the application area is not likely to alter the existing groundwater quality.

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

Methodology
Coffey Geotechnics (2008)
Outback Ecology (2009a)
GIS Database:
- Evaporation Isopleths
- Rainfall, Mean Annual
- 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 climate of the region is semi-arid warm Mediterranean with hot summers and cool winters (Outback Ecology, 2009b). The application area receives an average annual rainfall of approximately 300 millimetres (GIS Database). Based on an average annual evaporation rate of 2,600 millimetres (GIS Database), any surface water resulting from rainfall events is likely to be relatively short lived.

Vegetation within much of the application area has little or reduced understorey, due largely to impacts from grazing (Outback Ecology, 2009a). The clearing of native vegetation, being mainly larger perennials will likely result in an increase in runoff (Outback Ecology, 2009a). However, because of the open nature of the understorey at present, the proposed clearing is not likely to increase the incidence or intensity of flooding.

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

Methodology

Outback Ecology (2009a)
Outback Ecology (2009b)
GIS Database:
- Evaporation Isopleths
- Rainfall, Mean Annual

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

Comments

There is one Native Title Claim (WC99/30) 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 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 throughout 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.

Clearing permit CPS 3315/1 was granted by the Department of Mines and Petroleum (DMP) on 19 November 2009 and was valid from 19 December 2009 to 19 December 2011. The clearing permit authorised the clearing of 181.4 hectares of native vegetation. An application to amend the permit was received by DMP on 24 November 2011 for an extension to the duration of the permit by two years. Clearing permit CPS 3315/2 was granted on 16 December 2011. An application to amend clearing permit CPS 3315/2 was submitted to DMP on 17 January 2012 to increase the amount of clearing to 203 hectares. The clearing permit boundary will remain the same. The additional clearing is not likely to have significant additional environmental impacts.

The clearing permit application was advertised on 13 Februay 2012 by DMP inviting submissions from the public. No submissions were received.

Methodology

GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims - Registered with the NNTT

4. References

CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Department of Conservation and Land Management

Coffey Geotechnics (2008) Integra Mining: Salt Creek - Red Dale Groundwater Studies: Interim Report. Unpublished Report for Integra Mining Limited.

Commonwealth Scientific and Industrial Research Organisation (2009) Australian Soil Resource Information System. Available online at: http://www.asris.csiro.au/index_ie.html Accessed on 10 November, 2009.

DEC (2007) Definitions, Categories and Criteria for Threatened and Priority Ecological Communities. Department of Environment and Conservation, Western Australia.

DEC (2008) Priority Ecological Communities for Western Australia. Department of Environment and Conservation, Western Australia.

DEC (2009) Email from DEC to Integra Mining Limited, 29 July 2009.

Department of Environment, Water, Heritage and the Arts (2009) Merops ornatus - Rainbow Bee-eater. Available online at http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=670. Accessed 5 November 2009.

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.
Integra Mining Limited and Outback Ecology (2009) Summary of Randalls Gold Project for Clearing Permit Application. Unpublished Report by Outback Ecology, September 2009.
Johnstone, R.E & Storr, G.M (2004) Handbook of Birds of Western Australia Vol. II, Western Australian Museum, Perth.
Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
Outback Ecology (2009a) Salt Creek Level 2 and Maxwells/Cock-Eyed Bob Level 1 Vegetation and Flora Surveys. Unpublished report for Integra Mining Limited by Outback Ecology Services, Jolimont, Western Australia.
Outback Ecology (2009b) Terrestrial Vertebrate Fauna Assessment. Unpublished report for Integra Mining Limited by Outback Ecology Services, Jolimont, Western Australia.
Outback Ecology (2009c) Salt Creek, Maxwells and Cock-Eyed Bob Project Areas: Baseline Soil Survey Report. Unpublished report for Integra Mining Limited by Outback Ecology Services, Jolimont, 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.
Tille. P. (2006) Soil-landscapes of Western Australia's Rangelands and Arid Interior. Technical Report 313. Department of Agriculture and Food, Western Australia. ISSN 1039-7205.

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.