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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3306/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Crescent Gold Limited**

1.3. Property details

Property: Mining Lease 38/143
Local Government Area: Shire of Laverton
Colloquial name: Euro Hill Gold Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
67.13		Mechanical Removal	Mineral 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 scale of 1:250,000 for the whole of Western Australia. One Beard Vegetation Association is located within the application area (Shepherd, 2007):

Beard Vegetation Association 18: Low woodland; mulga (*Acacia aneura*).

MBS Environmental conducted a vegetation and habitat assessment of the application area and surrounding areas in September 2004. Four vegetation units were identified within the survey area (MBS Environmental, 2004):

1. Mulga dominated lowlands;
2. Chenopod shrubland with emergent patches of *Eucalyptus* woodland;
3. Small greenstone hills with outcropping banded iron formation dominated by Mulga shrubland over assorted mid storey scrub;
4. Drainage systems dominated by closed shrubland of *Acacia* species with emergent *Eucalyptus ravida*.

Clearing Description
Crescent Gold (2009) proposes to clear up to 67.13 hectares of native vegetation. The proposed clearing is located approximately 10 kilometres south of Laverton (GIS Database).

The purpose of the proposed clearing is for the construction of an open pit mine, waste rock landform, haul roads, laydown area and other associated infrastructure (Crescent Gold, 2009). Vegetation will be cleared by bulldozer and vegetation and topsoil will be stockpiled for rehabilitation purposes (Crescent Gold, 2009).

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

Comment
The vegetation condition rating is derived from information provided by MBS Environmental (2004).

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 East Murchison subregion of the Murchison Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). The East Murchison subregion is generally dominated by Mulga woodlands often rich in ephemerals; hummock grasslands, saltbush shrublands and *Halosarcia* shrublands (CALM, 2002).

A vegetation and habitat assessment of the application area was conducted by MBS Environmental in September 2004. MBS Environmental (2004) recorded a total of 95 native flora species from 29 families. The most common families were *Chenopodiaceae*, *Mimosaceae*, *Myoporaceae* and *Asteraceae* (MBS Environmental, 2004). Compared to other surveys conducted in the region, this appears to be a fairly typical level of flora diversity for the Murchison IBRA bioregion.

MBS Environmental (2004) identified the weed species Ruby Dock (*Acetosa vesicaria*) within the application

area. The presence of introduced weed species lowers the biodiversity value of the proposed clearing area. Care must be taken to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested areas. Should a clearing permit be granted, it is recommended that a condition be imposed for the purposes of weed management.

Fauna database searches were conducted using the Department of Conservation and Land Management (CALM) database and the *Environment Protection and Biodiversity Conservation* (*EPBC*) *Act, 1999* database (MBS Environmental, 2004). These searches identified up to 160 fauna species that could potentially occur within the application area consisting of 19 mammal species, 61 bird species, 75 reptile species and 5 amphibian species (MBS Environmental, 2004). MBS Environmental (2004) reports that the Murchison IBRA bioregion typically has high reptile fauna diversity. Most habitats within the survey area are likely to be equally diverse in reptiles, with species diversity being closely associated with microhabitat type (MBS Environmental, 2004).

MBS Environmental (2004) considers the survey area to have a low diversity of habitats and landforms and reports that the vegetation units identified are all common and widespread throughout the North Eastern Goldfield region. Based on this, the survey area is unlikely to be highly diverse in any fauna species.

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

Methodology CALM (2002)
MBS Environmental (2004)
GIS Database
- Interim Biogeographic Regionalisation for Australia

(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**
MBS Environmental conducted a vegetation and habitat assessment of the application area and surrounding areas in September 2004. MBS Environmental (2004) considers the survey area to have a low diversity of habitats and landforms and reports that the vegetation units identified are all common and widespread throughout the North Eastern Goldfield region. The expected fauna of the survey region are predominantly widespread eremaean species commonly found in the mulga zone (MBS Environmental, 2004).

The habitats within the application area are not likely to support many amphibian species, particularly as there are no drainage areas within the application area, however, the area applied to be cleared would support numerous reptile species (MBS Environmental, 2004). Primary habitats for reptiles in this region comprise of drainage areas and loamy flats for burrowing species such as dragons and goannas, tree hollows and bark for geckos and skinks, and rocky areas for the Barking Gecko (MBS Environmental, 2004). Areas of high litter and fallen timber amongst mulga patches and *Eucalyptus* patches provide habitat for elapid and blind snakes (MBS Environmental, 2004). Based on the vegetation units present within the application area any of these species has the potential to occur within the area applied to be cleared, however, according to available databases no drainage areas are present within the application area.

MBS Environmental (2004) reports that the Australian Bustard (Ardeotis australis), a Priority 4 fauna species on the Department of Environment and Conservation (DEC) Threatened and Priority fauna list, has previously been recorded in the area. This species is dispersive with widespread movements over long distances (DECC, 2005) and therefore, it is unlikely that the vegetation within the application area would represent significant habitat for this species.

The land systems of the application area are widespread on a regional scale (MBS Environmental, 2004; Pringle et al., 1994). Given this, it is unlikely that the localised disturbance created by the clearing of native vegetation would have significant impacts on the fauna habitat of any fauna species.

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

Methodology DECC (2005)
MBS Environmental (2004)
Pringle et al. (1994)

(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**
MBS Environmental (2004) conducted a field based vegetation and habitat assessment of the application area and surrounding areas following a desktop survey of the Department of Conservation and Land Management (CALM) Florabase database for plant species of conservation significance that could potentially occur within the application area. The desktop survey identified the following conservation significant flora species that have a high potential of occurring within the application area based on known range:

- *Calytrix praecipua* (Priority 3);

- *Frankenia georgei* (Priority 3);
- *Gunniopsis propinqua* (Priority 3);
- *Philotheca tubiflora* (Priority 1);
- *Phyllanthus baeckeoides* (Priority 1).

None of these species were identified within the application area during the field vegetation and habitat survey (MBS Environmental, 2004).

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

Methodology MBS Environmental (2004)

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

Comments

Proposal is not likely to be at variance to this Principle

There are no known Threatened Ecological Communities (TECs) within the area applied to clear (GIS Database). The closest known TEC is located approximately 240 kilometres west of the application area (GIS Database).

MBS Environmental (2008) reports that no TECs were identified during the flora and vegetation survey of the application area.

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

Methodology
MBS Environmental (2008)
GIS Database
- Threatened Ecological Communities

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

Comments

Proposal is not at variance to this Principle

The application area falls within the Murchison Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). Shepherd (2007) report that approximately 100% of the pre-European vegetation still exists in this bioregion (see table below). The vegetation within the application area is recorded as the following Beard Vegetation Association (Shepherd, 2007):

- Beard Vegetation Association 18: low woodland; mulga (*Acacia aneura*).

According to Shepherd (2007) approximately 100% of this vegetation association remains within the bioregion (see table below).

Therefore, the vegetation within the application area is not a significant remnant of native vegetation within an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Murchison	28,120,589.89	28,120,589.89	~100	Least Concern	1.06
Beard vegetation associations - State					
18	19,892,305	19,890,195	~100	Least Concern	2.1
Beard vegetation associations - Bioregion					
18	12,403,172.21	12,403,172.21	~100	Least Concern	0.37

* 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
- Interim Biogeographic Regionalisation of Australia

(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**
According to available databases there are no watercourses or wetlands within the proposed clearing area (GIS Database).

The nearest watercourse is a minor, ephemeral watercourse that lies adjacent to the application area (GIS Database). Based on this, it is unlikely that the proposed clearing of native vegetation would have an impact on any watercourses or wetlands.

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

Methodology GIS Database
- Hydrography, linear

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

Comments **Proposal is not likely to be at variance to this Principle**
The application area is described by MBS Environmental (2008) as consisting of gently undulating terrain of low relief, with prominent hills consisting of greenstone outcrops. According to available databases there are no watercourses within the application area (GIS Database).

The application area has been mapped as occurring within the Bevon and Gundockerta land systems (GIS Database).

The Bevon land system is described by Pringle et al. (1994) as consisting of irregular low ironstone hills with stony lower slopes supporting Mulga shrublands. The majority of the land system is not susceptible to soil erosion, however, minor areas with texture contrast soils on breakaway footslopes and narrow drainage tracts are susceptible to soil erosion, particularly if perennial shrub cover is substantially reduced (Pringle et al., 1994). The descriptions of the application area provided by MBS Environmental (2008) indicate that breakaway footslopes and narrow drainage tracts are not present within the application area and therefore, the sections of the application area that consist of the Bevon land system are not likely to be susceptible to erosion.

The Gundockerta land system consists of extensive, gently undulating, calcareous, stony plains, supporting bluebush shrublands (Pringle et al., 1994). Pringle et al. (1994) report that where not protected by a stony mantle, 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. According to the land descriptions provided by MBS Environmental (2008) these landforms are not present within the application area. Therefore, the sections of the application that consist of the Gundockerta land system are not likely to be susceptible to erosion.

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

Methodology MBS Environmental (2008)
Pringle et al. (1994)
GIS Database
- Rangeland Land System Mapping

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

Comments **Proposal is not likely to be at variance to this Principle**
The proposed clearing is not located within any conservation areas (GIS Database). The nearest Department of Environment and Conservation managed land is an un-named reserve located approximately 115 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
- CALM Managed Land and Waters

(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 there are no watercourses present within the application area (GIS Database). The application area is located within an arid region with an average rainfall of approximately 232.8

millimetres falling mainly during the winter months (BoM, 2009). The average annual evaporation rate greatly exceeds this rainfall rate and therefore, any surface water resulting from rain events is expected to be relatively short-lived. The topography of the application area is flat to slightly undulating and there are low rates of runoff generation in the area (MBS Environmental. 2008). Based on the above, the proposed clearing is unlikely to have a significant impact upon surface water quality in the area.

The proposed clearing is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The granitic and greenstone rocks found in the region are generally of low permeability and groundwater flows are small (MBS Environmental, 2008). Existing pits in the area indicate low rates of water inflow and subsequent de-watering (MBS Environmental, 2008). The water table has been measured at around 45 to 50 metres below ground level and MBS Environmental (2008) reports that much of the Euro pit will be above the water table. Therefore, the proposed clearing is unlikely to have a significant impact upon surface or groundwater quality, or groundwater quantity.

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

Methodology BoM (2009)
MBS Environmental (2008)
GIS Database
- Public Drinking Water Source Areas (PDWSAs)

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

Comments

Proposal is not likely to be at variance to this Principle

The application area is located in an arid region where the average annual evaporation rate greatly exceeds the average annual rainfall (BoM, 2009). There are no permanent watercourses within the application area however there are nearby ephemeral drainage lines (GIS Database). These drainages lines are expected to be dry for most of the year, and would likely only flow immediately following significant rainfall. MBS Environmental (2008) reports that flooding is unlikely due to the location of the application area in the headwaters of minor drainage lines.

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

Methodology BoM (2009)
MBS Environmental (2008)
GIS Database
- Hydrography, linear

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

Comments

There is one Native Title claim (WC99/001) over the area under application (GIS Database). This claim has been registered with the Native Title Tribunal on behalf of the claimant group. However, the tenement has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

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

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

There were no submissions received during the public comments period.

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

4. Assessor's comments

Comment

The proposal has been assessed against the Clearing Principles and the proposed clearing is not likely to be at variance to Principles (a), (b), (c), (d), (f), (g), (h), (i) and (j) and is not at variance to Principle (e).

Should the permit be granted it is recommended that conditions be imposed for the purposes of weed management, rehabilitation, record keeping and permit reporting.

5. References

BoM (2009) Climate Statistics for Australia Locations - Statistics for Laverton. Bureau of Meteorology. Available online from: www.bom.wa.gov.au. Accessed 21 September 2009.

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

Crescent Gold (2009) Clearing Permit Application Supporting Documentation, September 2009.

DECC (2005) Australian Bustard - profile. Department of Environment and Climate Change. Available online from: http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10063. Accessed 22 September, 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.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

MBS Environmental (2004) Vegetation and Habitat Assessment of the Euro, Sickle and Admiral Hill Project Areas, Laverton. Martinick Bosch Sell Pty Ltd, Western Australia.

MBS Environmental (2008) Laverton Gold Project Mining Proposal: Development of the Euro Open Pit, Mining Lease M38/0143. Martinick Bosch Sell Pty Ltd, Western Australia.

Pringle, H., Van Vreeswyk, A., Gilligan, S. (1994) An Inventory and condition survey of the north-eastern Goldfields, Western Australia. Technical Bulletin 87. Department of Agriculture, Western Australia.

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. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.

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.