



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3832/1
Permit type: Purpose Permit

1.2. Proponent details

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

1.3. Property details

Property: Mining Lease 38/318
Local Government Area: Shire of Laverton
Colloquial name: Grouse Pit Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
20		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	Clearing Description	Vegetation Condition	Comment
<p>Beard Vegetation Associations have been mapped at a 1:250,000 scale for the whole of Western Australia. One Beard Vegetation Association has been mapped within the application area (GIS Database; Shepherd, 2007).</p> <p>18: Low woodland; mulga (<i>Acacia aneura</i>)</p> <p>The application area was surveyed by J & J Tucker Environmental Solutions in April 2008 (J & J Tucker Environmental Solutions, 2008). The following vegetation types were identified within the application area.</p> <p>Calciptich Pearl Bluebush Shrublands (CPBS):</p> <p><i>Acacia aneura</i>, <i>Hakea preissii</i>, <i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i> scattered tall shrubs over <i>Maireana sedifolia</i>, <i>Maireana pyrdamidata</i> low chenopod shrubland over scattered grasses (J & J Tucker Environmental Solutions, 2008).</p> <p>Drainage Tract Mulga Shrubland (DRMS):</p> <p><i>Acacia aneura</i> low forest over highly variable under storey of shrubs, grasses and herbs. Mid storey comprise of <i>Acacia</i> and <i>Eremophila</i>, while the lower storey contains <i>Maireana</i>, <i>Ptilotus</i>, <i>Dianella</i>, <i>Scaevola</i> and <i>Sida</i> species (J & J Tucker Environmental Solutions, 2008).</p>	<p>Crescent Gold Limited has applied to clear up to 20 hectares of native vegetation within an application area totalling approximately 73 hectares for the purpose of mineral production. Clearing will be for the development of an open pit, waste rock landforms, haul roads, laydown areas and other associated mining infrastructure.</p> <p>The vegetation will be cleared using bulldozers or other heavy machinery. The vegetation and topsoil will be stockpiled for use in rehabilitation.</p> <p>The land at the Grouse project area is heavily disturbed due to a combination of historic and current pastoral, exploration and mining activities.</p>	<p>Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).</p> <p>to</p> <p>Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).</p>	<p>The vegetation condition has been derived from a vegetation survey conducted by J & J Tucker Environmental Solutions (2008) as well as assessment of aerial imagery by the assessing officer.</p>

3. Assessment of application against clearing principles

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

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

The application area occurs within the East Murchison sub-region of the Murchison Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). The vegetation is dominated by Mulga woodlands often rich in ephemerals, hummock grasslands, saltbush shrub lands and Halosarcia shrub lands (CALM, 2002). The vegetation described within the application area is typical of the bioregion.

A vegetation survey of the application area identified 51 species of native flora belonging to 24 genera from 19 families (J & J Tucker Environmental Solutions, 2008). Chenopodiaceae, Myoporaceae and Mimosaceae families were the most diverse within the survey area (J & J Tucker Environmental Solutions, 2008). No Declared Rare Flora, Priority flora, Threatened Ecological Communities or Priority Ecological Communities were recorded or identified within the application area. The vegetation communities identified within the application area are typical of the floristics of the Eastern Murchison IBRA sub-region, however it is evident the vegetation condition within the application area has been significantly impacted on by historic and current pastoral, mining and exploration activities.

An area search of the Western Australian Museum's Faunabase conducted by the assessing officer suggests that the application area is diverse in reptile species, particularly Skinks (28) (Western Australian Museum, 2009). The database search found 77 reptile species from 7 families as potentially occurring within the application area, or within a 50 kilometre radius of the application area.

The application area is not likely to comprise of a high level of biological diversity, considering the condition of the vegetation within the application area and the availability of higher quality areas of vegetation throughout the local and regional area.

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

Methodology CALM (2002)
DEC (2010)
J & J Tucker Environmental Solutions (2008)
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

Coffey Environments (2008) conducted a reconnaissance fauna survey of the application area on 15 May 2008 and identified the dominant fauna habitat as Mulga woodland on a rock-clay substrate. This vegetation type is widely represented in the Laverton region and Murchison bioregion (Coffey Environments, 2008; Shepherd, 2007).

The vegetation within the majority of the application area has been extensively disturbed by previous mining and pastoral activities (Coffey Environments, 2008). It is likely that these disturbances have reduced the habitat value of the vegetation when compared to adjoining vegetation which appears to be in better quality (GIS Database). The vegetation within Skull Creek, which intercepts the southern portion of the application area, appears to be in 'Very Good' condition as it has been subject to minimal disturbance. This vegetation is clearly denser than the surrounding vegetation and is likely to be of higher habitat value for fauna in terms of its foraging, protection and linkage value. However, the vegetation type it is not unique or restricted to the application area. A narrow haul route is the only disturbance proposed for the vegetation associated with Skull Creek (Crescent Gold Limited, 2010).

The vegetation under application does not form part of a remnant of native vegetation, and does not represent an important ecological linkage.

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

Methodology Coffey Environments (2008)
Crescent Gold Limited (2010)
Shepherd (2007)
GIS Database:
- Burtville 50cm Orthomosaic - Landgate 2006
- Laverton 50cm Orthomosaic - Landgate 2006

(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 Declared Rare Flora species within the application area (GIS database).

No DRF were recorded during the flora and vegetation survey by J & J Tucker Environmental Solutions (2008).

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

Methodology J & J Tucker Environmental Solutions (2008)
GIS Database:
- Declared Rare and Priority Flora List

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

Comments **Proposal is not likely to be at variance to this Principle**
According to available databases there are no Threatened Ecological Communities (TEC's) within the application area (GIS database).

No TEC's were identified during the flora and vegetation survey by J & J Tucker Environmental Solutions (2008).

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

Methodology J & J Tucker Environmental Solutions (2008)
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 is located within the Murchison bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Shepherd (2007) report that approximately 100% of the pre-European vegetation remains in the state and Murchison bioregion (see table below).

The vegetation in the application area is broadly mapped as Beard Vegetation Association 18: Low woodland; mulga (*Acacia aneura*) (GIS Database; Shepherd, 2007). According to Shepherd (2007) approximately 100% of Beard Vegetation Association 18 remains within the Murchison bioregion.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Murchison	28,120,589	28,120,589	~100	Least Concern	~1.1
Beard veg assoc. – State					
18	19,892,305	19,890,195	~100	Least Concern	~2.1
Beard veg assoc. – Bioregion					
18	12,403,172	12,403,172	~100	Least Concern	~0.4

* Shepherd (2007)

** Department of Natural Resources and Environment (2002)

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

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

Methodology Department of Natural Resources and Environment (2002)
Shepherd (2007)
GIS Database
- IBRA WA (Regions - 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**
There are no permanent watercourses or wetlands within the application area, however, the southern portion of the application area intercepts Skull Creek which is a minor, non-perennial watercourse (GIS Database). Skull Creek appears to be the largest intermittent drainage line in the local area (GIS Database), and is likely to support surface water flows for short periods following significant rainfall events.

J & J Tucker Environmental Solutions (2008) have mapped the vegetation within Skull Creek as 'Drainage Tract Mulga Shrubland' and advises that the creek line vegetation comprises of a well developed structure of upper, mid and lower storeys. Aerial imagery clearly demonstrates that the vegetation within Skull Creek is denser than the adjoining vegetation (GIS Database). Whilst the vegetation type is not restricted to the

application area, it is likely to be responsible in minimising erosion risk of the creekline during flow events, as well as providing habitat value for fauna. Crescent Gold Limited (2010) advises that a narrow haul route is the only disturbance proposed for the vegetation associated with Skull Creek.

Based on the above, the proposed clearing is at variance to this Principle. Potential impacts to Skull Creek as a result of the proposed clearing may be minimised by the implementation of a watercourse management condition.

Methodology Crescent Gold Limited (2010)
J & J Tucker Environmental Solutions (2008)
GIS Database
- Hydrography, linear
- Hydrography, linear (hierarchy)

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

Comments Proposal may be at variance to this Principle

According to available datasets the application area intersects the Gundockerta and Nubev Land Systems (GIS Database).

The Gundockerta Land System is described as extensive, gently undulating, calcareous, stony plains, supporting bluebush shrublands (Pringle et al., 1994). An analysis of aerial photography reveals that the application area is most likely to fall within the 'alluvial plains' and 'drainage zone' land units of the Gundockerta Land System (GIS Database). The soils within the application area have been rated as a loam, and contain less gravel when compared to soils from other Laverton project areas (Crescent Gold Limited, 2010). These soils may be susceptible to water erosion, especially in areas not protected by a stony mantle or where vegetation is cleared and/or the soil surface is disturbed (Pringle et al., 1994).

The Nubev Land System is described as gently undulating stony plains, minor limonitic low rises and drainage floors, supporting mulga and halophytic shrublands (Pringle et al., 1994). An analysis of aerial photography reveals that the application area is most likely to fall within the 'saline stony plains' and/or 'drainage zone' land unit of the Nubev Land System (GIS Database). Drainage zone land units are moderately susceptible to soil erosion, particularly when vegetative cover is reduced or the soil surface is disturbed (Pringle et al., 1994). Disturbance of any protective stony mantle is also likely to initiate water erosion (Pringle et al., 1994).

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

Methodology Crescent Gold Limited (2010)
Pringle et al. (1994)
GIS Database
- Burtville 50cm Orthomosaic - Landgate 2006
- Laverton 50cm Orthomosaic - Landgate 2006
- Rangeland Land System Mapping

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

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

The application area is located approximately 135 kilometres to the north-east of an un-named Nature Reserve (GIS Database). The vegetation within the application area does not provide a buffer or ecological linkage to this conservation area.

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

Methodology GIS Database
- DEC Tenure

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

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

The application area is situated approximately 5 kilometres south, south-east of the Laverton Water Reserve (GIS Database). Risks to the Laverton Water Reserve include contamination from pathogens, pesticides, nutrients, chemicals and hydrocarbons (Department of Water, 2007). At this distance the proposed clearing is not likely to pose a significant risk to the quality of surface or underground water within the Laverton Water Reserve.

There are no permanent watercourses or wetlands within the application area (GIS Database). Skull Creek, a minor, non-perennial watercourse, intercepts the southern portion of the application area (GIS Database). This watercourse is only likely to support water for short periods following significant rainfall events. It is likely that

these flows would contain a high amount of suspended sediment. The proposed clearing is not likely to cause significant deterioration in the quality of any surface flows.

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

Methodology Department of Water (2007)
GIS Database:
- Hydrography, linear
- Hydrography, linear (hierarchy)
- 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 within the Lake Carey catchment area (GIS Database). The size of the proposed clearing (20 hectares) in relation to the size of the Lake Carey catchment area (11,378,213 hectares) is not likely to lead to an increase in flood height or duration (GIS Database).

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

Methodology GIS Database:
- Hydrographic Catchments - Catchments

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

Comments

There is one native title claim (WC99_001) over the area under application. This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the 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*.

There is one known Aboriginal Site of Significance located approximately 4 kilometres west-north-west of the application area (GIS Database). Crescent Gold Limited (2010) advises that no Aboriginal Sites of Significance were identified during a heritage survey of the project area. It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

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

The clearing permit application was advertised on 19 July 2010 by the Department of Mines and Petroleum, inviting submissions from the public. One submission was received in outlining concern over potential impacts to Aboriginal heritage sites. These concerns have been addressed above.

Methodology Crescent Gold Limited (2010)
GIS Database
- Aboriginal Sites of Significance
- Native Title Claims

4. Assessor's comments

Comment

The application has been assessed against the clearing principles, planning instruments and other matters in accordance with s.51O of the *Environmental Protection Act 1986*, and the proposed clearing is at variance to Principle (f), may be at variance to Principle (g), is not likely to be at variance to Principles (a), (b), (c), (d), (h), (i) and (j) and is not at variance to Principle (e).

5. References

CALM (2002). A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
Coffey Environments (2008). Level 1 Fauna Assessment Grouse Deposit Laverton Gold Project, prepared for Crescent Gold Limited, Prepared by Coffey Environments, June 2008.
Crescent Gold Limited (2010). Documentation Accompanying Clearing Permit Application for CPS 3832/1, Prepared by Crescent Gold Limited, July 2010.
DEC (2010). NatureMap: Mapping Western Australia's Biodiversity. Department of Environment and Conservation. <URL: <http://naturemap.dec.wa.gov.au/>>.

- Department of Natural Resources and Environment (2002). Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- Department of Water (2007). Laverton Water Reserve and Catchment Area Drinking Water Source Protection Plan – Laverton Town Water Supply, Water Resource Protection Series, Report No. WRP 74, June 2007.
- J & J Tucker Environmental Solutions (2008). Report No 010408 on Flora Survey Carried out for Crescent Gold at Grouse Project near Laverton during June 2008. Unpublished Report for MBS Environmental on Behalf of Crescent Gold Limited.
- Keighery, B.J. (1994). Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Pringle, H.J.R., Van Vreeswyk, A.M.E., and Gilligan, S.A. (1994). An Inventory and Condition Survey of the Rangelands in the North-Eastern Goldfields, Technical Bulletin No. 87, Western Australia, Department of Agriculture, Western Australia, December 1994.
- 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.