



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3577/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Crescent Gold Limited

1.3. Property details

Property: Mining Lease 38/261
Miscellaneous Licences 38/76 and 38/165

Local Government Area:

Colloquial name: Burtville to Grannysmith Haul Road Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
64.2		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 1:250,000 scale for the whole of Western Australia and are useful to look at vegetation extent in a regional context. One Beard Vegetation Association is located within the proposed clearing area (GIS Database):

-Vegetation type 18: Shrublands; *Acacia rostellifera* thicket.

A vegetation survey of the application area was undertaken by Goldfields Landcare Services in September 2009. As a result, the following vegetation associations were recorded within the application area (Goldfields Landcare Services, 2009):

SIMS: Stony ironstone mulga shrublands: represented 32% of the surveyed area and as was pointed out in Technical Bulletin 87 (Pringle et al 1994) 'natural site variation is considerable'. Pringle also states that: 'SIMS occurs on the hillslopes and low rises within greenstone belts and often has a heavy stony mantle in which rocks which have been indurated by iron are common. Soils are generally shallow red earths on greenstone or basalts'.

DRMS: Drainage tract mulga shrublands: Drainage lines accounted for approximately 8.8% of the area and although not consistently so, are represented by: Mulga thicket (30-70% PFC > 2m) over mixed heath (30-70% PFC 1-2m) of *Acacia* sp. *Senna artemisioides* subsp. *filifolia*, *Sida calyxhymenia* and *Pimelia microcephala* over mixed low heath (30-70% PFC <1m) of *Ptilotus obovatus*, *Rhagodia drummondii* and *Eremophila glutinosa* on red/brown sandy loam with quartz and ironstone pebbles.

GRMU: Mulga groves on hardpan plains: is described by Pringle in Technical Bulletin 87 thus: 'Mulga groves generally occur as acute clumps of considerably denser mulga shrubs than areas around them, and are generally found arranged with their long axes along the contour as a series of bands of vegetation on gently inclined wash plains. They have distinct and abrupt boundaries with sparser intergrove communities. (Pringle et al.1994, p.164). While these features were not all apparent on the ground during the survey, subsequent detailed examination of aerial photographs and Google Earth images revealed a sufficient number of them to justify this classification being applied to approximately 11% of the area surveyed. The Mulga groves occupied approximately 30-50% of the areas classified as GRMU and consisted of Mulga scrub (30-70% PFC >2m) over mixed heath (30-70% PFC 1- 2m) of *Acacia tetragonophylla*, *A. craspedocarpa* and *Dodonaea rigida* over mixed low heath (30- 70% PFC <1m) containing *Eremophila* spp, *Senna* spp, *Scaevola spinescens*, *Sida calyxhymenia* and *Maireana* spp.

LHMS: Lateritic hardpan mulga shrublands: Extending over 113.1 ha, this site type accounted for 37.4% of the surveyed area and exhibited a considerable degree of variation. At 458944mE; 6813951mN it was represented as: Mulga thicket (30-70% PFC >2m) with *Acacia craspedocarpa* and *A. tetragonophylla* over low *Acacia* scrub (10-30% PFC 1-2m), over mixed dwarf scrub (10-30% PFC < 1m) of *Eremophila* spp, *Ptilotus obovatus*, *Sida calyxhymenia* and *Mirbelia depressa* on orange red loam with quartz and ironstone cobbles (20-100mm).

CPBS: Calcyphytic Pearl Bluebush Shrublands: CPBS occupied 4.6% of the surveyed area and was described as Open Mulga scrub (2-10% PFC >2m) with emergent Sheoaks over scattered shrubs (<2% PFC 1-

2m) of *Maireana sedifolia* and *M. pyramidata* over open dwarf scrub (2-10% PFC < 1m) of *Maireana* spp and *Sclerolaena* spp on pale pink clay loam covered with quartz and ironstone pebbles and greenstone cobbles over calcrete substrate.

USBS: Upland small bluebush species shrublands: This site type occurred in one location only, approximately one kilometre south east of the old Burtville hotel. It is bounded by the eastern end of the surveyed corridor and the Burtville - Hackwell road. It occupied an area of just 2.2 hectares and due to its proximity to the old mining township, has undergone a high degree of disturbance both directly man made, as evidenced by cut Mulga stumps and rubbish remaining from old settlements as well as from overgrazing by being located between merging fence lines less than 500 metres apart at their widest point of separation. It is considered highly likely that the structural formation of the remaining vegetation bears little resemblance to that which existed prior to white settlement. It is currently represented as open Mulga scrub (2-10% PFC > 2m) with occasional *Acacia tetragonophylla*, *A. burkittii* and *Hakea preissii* over scattered shrubs (<2% PFC 1-2m) of *Senna* spp, *Cratystylus subspinescens*, *Sida calyxhymenia* and *Scaevola spinescens* over dwarf scrub (10-30% PFC <1m) of *Ptilotus* spp, *Maireana* spp, *Sclerolaena* spp and *Enchylaena tomentosa* on red brown loam with quartz and ironstone pebbles and cobbles.

DIST: disturbed area: The area classified as disturbed at 452725mE; 6813158mN accounted for approximately 1.4% of the total surveyed area. It had previously undergone intensive drilling activity and had been selectively scarified in an attempt to induce some revegetation. As can be seen from the photograph this was unsuccessful. The scattered remnant vegetation remaining consisted of *Acacia oswaldii*, *Hakea preissii*, *Senna artemisioides* subsp *petiolaris*, *Maireana georgei*, *M. triptera*, *Ptilotus obovatus*, *Atriplex semilunaris* and *Triodia basedowii*. The soil was a red, brown loam with ironstone pebbles and cobbles and a minor amount of quartz.

Clearing Description	Crescent Gold have applied to clear 64.2 hectares within a purpose permit boundary of approximately 322 hectares, for the purpose of constructing a haul road between the old Burtville mine to the Barrick Grannysmith gold plant (Crescent Gold, 2010). Vegetation will be cleared for the following; haul road, borrow pits, off road parking and water stand pipes. The application area is located approximately 22 kilometres south-east of Laverton on Miscellaneous Licences 38/76 and 38/165, and Mining Lease 38/261 (GIS Database).
Vegetation Condition	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994).
Comment	<p>The proposed haul road will be approximately 18.8 kilometres in length, with a width of 12 metres. The estimated disturbance width is 32 metres across. Topsoil will be stockpiled continuously along the road in carefully placed rills (Crescent Gold, 2010).</p> <p>Disturbance from previous exploration activities including drill lines and tracks are evident across much of the site (Goldfields Landcare Services, 2009) Further to this, the vegetation of the application area has been impacted from grazing from goats and sheep.</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	<p>Proposal is not likely to be at variance to this Principle</p> <p>The application area is located within the East Murchison subregion of the Murchison Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). The region is characterised by extensive areas of elevated red desert sandplains, salt lake systems associated with the occluded paleodrainage systems, broad plains of red-brown soils and breakaway complexes (CALM, 2002). The vegetation of the subregion is dominated by Mulga woodlands often rich in ephemerals; hummock grasslands, saltbush shrublands and Halosarcia shrublands. CALM (2002) reports that most species are wide ranging and usually occur in at least one, and often several, adjoining subregions.</p> <p>A flora and vegetation survey was undertaken by Goldfields Landcare Services in January and September 2009. As a result of the survey, a total of 117 native taxa from 27 families and 50 genera were recorded in the application area (Goldfields Landcare Services, 2009). The most common genera were Chenopodiaceae (21 taxa), Mimosaceae (16 taxa) and Myoporoaceae (16 taxa). This level of flora taxa is indicative of a moderate level of diversity for this region (Goldfields Landcare Services, 2009).</p> <p>During the flora and vegetation survey a small area of 0.25 hectares with particularly dense and diverse vegetation was found (Goldfields Landcare Services, 2009). One specimen of <i>Eremophila oldfieldii</i> subsp. <i>Angustifolia</i> which normally grows to a height of no more than four metres was estimated to be approximately 7.65 metres tall. Other very large specimens <i>Eucalyptus alternifolia</i> and <i>Acacia burkitti</i> were growing with <i>Pittosporum angustifolium</i>, <i>Acacia tetragonophylla</i> and juveniles of these same species and <i>Senna</i> ssp. There was a dense understorey of <i>Ptilotus obovatus</i>, <i>Maireana triptera</i> and assorted annuals. The area has a drainage line moving through it which has enabled the plants within it to attain exceptional size, density and diversity (Goldfields Landcare Services, 2009). Evidence of bird and animal excrement adds further weight to the conclusion that this small area is a refuge and nesting/breeding ground for birds and animals as well as a valuable source of seed for both food and potential revegetation, in an otherwise relatively barren area (Goldfields Landcare Services, 2009). Crescent Gold (2010) have stated that this vegetation community will be avoided during the construction of the haul road.</p>
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Three introduced weed species were noted as occurring in the survey area, including *Citrullus lanatus* (Afghan Melon), *Cucumis myriocarpus* (Paddy Melon) and *Malvastrum americanum* (Spiked Malvastrum) (Goldfields Landcare Services, 2009). The proposed vegetation clearing has the potential to introduce further weed species into the local area should adequate hygiene practices not be put in place. Weeds can affect biodiversity in a number of ways, including out competing native species for resources and increasing the fire risk. Standard weed management protocols can manage the risks posed by the introduction and spread of weeds.

MBS Environmental (2009) conducted a fauna survey of the application area in September 2009. This survey identified 39 bird species, nine native mammal species and 11 reptile species within the study area. There were also four introduced mammal species which were recorded within the application area. It is expected that more reptiles and bird species would frequent the study area than were recorded during the fauna survey. MBS Environmental (2009) reports that the small number of reptiles observed during the survey may be attributed to the cool weather conditions experienced during the mornings and nights of the fauna survey.

The application area is located within the Mt Weld pastoral lease and has been impacted from historical grazing from sheep and goats which has degraded the vegetation structure. Further to this, Goldfields Landcare Services (2009) report that parts of the application area have been disturbed from exploration in the form of drill lines and vehicle tracks. It is likely that disturbances noted above have contributed to a reduced biodiversity level within the application area in comparison to surrounding areas.

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

Methodology CALM (2002).
Crescent Gold (2010).
Goldfields Landcare Services (2009).
MBS Environmental (2009).
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**

A fauna survey of the application area was undertaken by MBS Environmental between 7 and 12 September 2009. The fauna survey included a desktop review of:

-DEC's online database (NatureMap) to identify potential fauna in the area;

-DEC's Threatened and Priority Species database to identify potential priority and threatened species occurring in the area; and

-Commonwealth Department of Environment, Water, Heritage and the Arts (DEHWA) online database to identify fauna species potentially within the area that are protected under the *Environmental Protection and Biodiversity Conservation Act 1999*.

In addition, a reconnaissance site visit was conducted between 7 and 12 September 2009. During this visit sites were traversed on foot and by vehicle. MBS Environmental (2009) reports that direct observations of fauna encountered, as well as indirect indications of the presence of fauna such as tracks and scats were used to compile a list of vertebrate species occurring in the area. Photographs were taken of the faunal habitats (MBS Environmental, 2009).

The following fauna habitats were recorded in the application area:

-Calcyphytic Pearl Bluebush Shrublands (CPBS);

-Upland Small Bluebush Species Shrubland (USBS);

-Stony Ironstone Mulga Shrublands (SIMS);

-Quartz Outcrop;

-Lateritic Hardpan Mulga Shrublands (LHMS);

-Mulga Groves on Hardpan Plains (GRMU);

-Drainage Tract Mulga Shrublands (DRMS);

-Greenstone Hill Acacia Shrublands (GHAS); and

-Disturbed.

MBS Environmental (2009) report that of the habitats recorded, one (CPBS) was found to be significant habitat for fauna species. MBS Environmental (2009) have stated that within habitat type CPBS; numerous large habitat trees of Eucalypt spp, *Casuarina pauper* and *Brachychiton gregorii* were recorded, and these should be retained as they are of significant habitat value to fauna. Additionally, a clump of vegetation with large Eremophila and Pittosporum spp was also recorded within this habitat type which is thought to be significant (MBS Environmental, 2009). Crescent Gold have made a commitment to avoid clearing within this area as this habitat type is found outside of the proposed clearing footprint on the southern border of tenement L38/165.

During the reconnaissance survey there were no conservation significant species recorded in the application area. MBS Environmental (2009) have stated that all of the habitats within the application area (apart from habitat type CPBS) are well represented on a regional scale. MBS Environmental (2009) also report that there are higher quality habitats such as breakaways and drainage lines outside of the application area in adjacent areas which are more likely to support conservation significant fauna species.

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

Methodology MBS Environmental (2009).

(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

There are no known Declared Rare Flora or Priority flora species found within the application area (GIS Database).

A flora and vegetation survey of the application area was undertaken by Goldfields Landcare Services in January and September 2009. This involved a detailed database search of the application area and reconnaissance survey to document and describe the presence of all flora species, vegetation associations and species of conservation significance within the application area (Goldfields Landcare Services, 2009). As a result of the onground survey, there were no conservation significant flora species recorded within the application area.

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

Methodology Goldfields Landcare Services (2009).
GIS Database:
Declared Rare and Priority Flora List_1

(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

The closest known Threatened Ecological Community (TEC) to the application area is Mt Jumbo, which is found approximately 17 kilometres to the north-west of the application area (GIS Database). Goldfields Landcare Services (2009) did not locate any TEC's or Priority Ecological Communities (PEC's) within the application area.

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

Methodology Goldfields Landcare Services (2009).
GIS Database:
-tec_sites_1

(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 within which approximately 100% of the Pre-European vegetation remains (see table overleaf) (GIS Database; Shepherd, 2007).

The vegetation of the application area has been mapped as:

Beard Vegetation Association 18: Shrublands; *Acacia rostellifera* thicket.

According to Shepherd (2007) approximately 100% of Beard Vegetation Association 18 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.

Whilst only a small percentage of the vegetation types within the Murchison 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 (and post clearing %)*
IBRA Bioregion – Murchison	28,120,589.89	28,120,589.89	~100	Least Concern	1.06 (1.06)
Beard veg assoc. – State					
18	19,892,305	19,890,195	~100	Least Concern	2.1 (2.1)
Beard veg assoc. – Bioregion					
18	12,403,172	12,403,172	~100	Least Concern	0.4 (0.4)

* 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:
- Pre-European Vegetation_1.
- IBRA 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 at variance to this Principle

There are no permanent watercourses or wetlands within the application area (GIS Database). There are ten minor, non-perennial watercourses which intersect the proposed haul road area (GIS Database).

During the flora and fauna survey there was one vegetation association recorded which was associated with a watercourse (Goldfields Landcare Services, 2009):

-DRMS: Drainage tract mulga shrublands

Crescent Gold (2010) have stated that clearing will be required within these minor drainage lines for the haul road. However, it should be noted that the vegetation within these drainage tracts is well represented in the surrounding area. Analysis of aerial photography indicates that ephemeral drainage lines are a common feature both locally (within a 50 kilometre radius) and regionally (within the Murchison bioregion) (GIS Database).

There was one additional drainage area recorded during the flora and vegetation survey which was found to be significant. The area was approximately 0.25 hectares in size and had numerous oversize specimens of *Eremophila oldfieldii* subsp. *angustifolia*, *E. alternifolia*, *Acacia burkitti* and *Pittosporum angustifolium*. Goldfields Landcare Services (2009) have stated that due to excess water captured in this drainage area, plants have been able to attain exceptional size, density and diversity. This area is likely to be a seasonal riparian zone within an otherwise barren area. Crescent Gold (2010) have committed to avoid clearing within this drainage line area.

In regards to the management of impacts to vegetation within drainage lines of the application area, Crescent Gold (2010) have stated that the following management measures will be implemented:

-The road design will ensure that rainfall will be contained in the V drains and that V drains have the capacity to contain runoff from water associated with dust management;

-Erosion at drainage line crossings will be minimised by rock paving in watercourses, use of blanket material where required and rock beaching on the sides of the drainage lines particularly upstream;

-Clearing and topsoil stripping will not be undertaken during periods of heavy rainfall or high winds; and

-Crescent Gold will check that flow through pipes after a major rainfall event is unrestricted and will remove and

blockages as necessary.

Given that this clearing proposal involves clearing of vegetation growing in, or in association with, an environment associated with a watercourse or wetland, the proposed clearing is at variance to this Principle. However, the mitigation measures outlined above should adequately manage the risk of significant soil erosion occurring.

Methodology Crescent Gold (2009).
Goldfields Landcare Services (2009).
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 may be at variance to this Principle

The application area traverses several land systems (GIS Database), including:

Gundockerta land system: Extensive, gently undulating, calcareous, stony plains, supporting bluebush shrublands;

Jundee land system: Hardpan plains with ironstone gravel mantles, supporting mulga shrublands;

Monitor land system: Distributary alluvial fans and wash plains, supporting mulga- chenopod shrublands;

Nubev land system: Gently undulating stony plains, minor limonitic low rises and drainage floors, supporting mulga and halophytic shrublands; and

Violet land system: Undulating stony and gravelly plains and low rises, supporting mulga shrublands.

The majority of the land systems above are protected from erosional forces as they have a protective stony mantle (Pringle et al., 1994). However, the removal of this stony mantle during the clearing process is likely to initiate some temporary erosion within the application area. However, due to the low rainfall of the area this risk is likely to be minimal.

There are ten drainage lines within the application area (GIS Database); with the majority of these found within the Monitor land system which is highly susceptible to water erosion. Impedances to water flows in this land system is also likely to cause water starvation of vegetation downstream and thus loss of vegetation vigour (Pringle et al., 1994).

In regards to the management of water erosion in the application area, Crescent Gold (2010) have stated that the following management measures will be implemented to mitigate the potential for soil erosion:

-The road design will ensure that rainfall will be contained in the V drains and that V drains have the capacity to contain runoff from water associated with dust management;

-Erosion at drainage line crossings will be minimised by rock paving in watercourses, use of blanket material where required and rock beaching on the sides of the drainage lines particularly upstream;

-Clearing and topsoil stripping will not be undertaken during periods of heavy rainfall or high winds; and

-Crescent Gold will check that flow through pipes after a major rainfall event are unrestricted and will remove any blockages as necessary.

Given the risk of erosion occurring within the drainage and alluvial tracts of the application area, the proposed clearing may be at variance to this Principle. However, the mitigation measures outlined above should adequately manage the risk of significant soil erosion occurring.

Methodology Crescent Gold (2010).
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 nearest known conservation area to the application area is De La Poer Range Nature Reserve, which is situated approximately 141 kilometres to the west (GIS Database). Based on this distance, it is unlikely the

environmental values of De La Poer Range Nature Reserve (or any other conservation area) will be compromised by the proposed clearing.

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

Methodology GIS Database:
- CALM Managed Lands 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 may be at variance to this Principle

According to available databases, the proposed clearing area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database).

The average annual rainfall within the proposed clearing area is 260 millimetres and the average annual evaporation rate is 2,200 millimetres (Bureau of Meteorology (BoM), 2009; GIS Database). Therefore, during normal rainfall events surface water in the proposed clearing area is likely to evaporate quickly. However, during substantial rainfall events erosion may occur in cleared areas resulting in a higher sediment load. It is possible that erosion may result from vegetation clearing; especially where the haul road intersects ten minor drainage lines which are highly susceptible to erosion if vegetation is removed (Pringle et al., 1994). In regards to the management of this, Crescent Gold (2010) have committed to:

-install V drains which will ensure surface flows in these areas are maintained;

- implementing rock paving within watercourses, the use of blanket material where required and rock beaching on the sides of drainage lines particularly upstream; and

-check that flow through pipes after a major rainfall event is unrestricted and will remove and blockages as necessary.

The proposed clearing area is characterised by saline groundwater of 3000-7000 milligrams/Litre Total Dissolved Solids (GIS Database). The groundwater of the application area is characterised by groundwater well below the surface of around 40-50 metres (Crescent Gold, 2010). It is unlikely the removal of deep rooted shrubs and trees will have a significant impact on the quality or level of groundwater within the application area.

Given the risk of erosion occurring within the drainage lines of the application area, the proposed clearing may be at variance to this Principle. However, the mitigation measures outlined above should adequately manage the risk of significant soil erosion occurring.

Methodology BoM (2010).
Crescent Gold (2010).
Pringle et al. (1994).
GIS Database:
- Evapotranspiration, Point Potential
-Groundwater Salinity, Statewide
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs).

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

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

The climate of the region is described as arid to semi-arid with hot summers and cool winters. The average annual rainfall is 260 millimetres, with rains occurring in winter from cold fronts from the west, whilst in summer thunderstorms can produce heavy localised falls in short periods (BoM, 2010). Based on an average annual evaporation rate of 2,600 millimetres (BoM, 2010), any surface water resulting from rainfall events is likely to be relatively short lived.

The clearing of native vegetation is likely to result in an increase in surface water runoff; however, 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 BoM (2010).
GIS Database:
Western Australia ETM 25m 543.

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

Comments

There is one native title claim over the area under application: WC99/001 (GIS Database). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenements have 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*.

One direct interest submission was received during the public advertising period stating concerns about Aboriginal Sites of Significance and whether heritage surveys had been undertaken in the application area. It was requested that if heritage surveys had been undertaken, that they be provided a copy of these surveys. DMP have conveyed these concerns to Crescent Gold. According to available databases, there are no 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.

Methodology GIS Databases:
- 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 at variance to Principle (f), may be at variance to Principles (g) and (i), is not likely to be at variance to Principles (a), (b), (c), (d), (h), and (j) and is not at variance to Principle (e).

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

5. References

- BoM (2010) Climate of Kalgoorlie - Boulder URL: <http://www.bom.gov.au/weather/wa/kalgoorlie/climate.shtml>
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- Crescent Gold (2010) Supporting information for clearing permit application CPS 3577/1.
- 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.
- Goldfields Landcare Services (2009) Flora and Vegetation Survey of Proposed Haul Road from Burtville to Granny Smith Plant Laverton WA. Unpublished report prepared October 2009 for Crescent Gold Pty Ltd.
- 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 (2009) Laverton Gold Project - Level 1 Fauna Survey for Burtville to Fish (M38/073, M38/261, L38/120 and L38/164) and Burtville to Barrick Granny Smith (L38/165) Haul Roads. Unpublished report prepared October 2009 for Crescent Gold Pty Ltd.
- Pringle, H., Van Vreeswyk, A. and 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.