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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3067/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: **Mount Gibson Mining Ltd**

1.3. Property details

Property: Mining Lease 70/896
Local Government Area: Shire of Mullewa
Colloquial name: Tallering Peak Iron Ore Mine: T6B Stage 2 Expansion Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
5.5		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
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 occurs within the application area (GIS Database): Beard Vegetation Association 228: Shrublands; *Acacia quadrimarginea* scrub. No flora and vegetation surveys have been commissioned to specifically describe the vegetation communities of the proposed clearing area. However, rare flora searches undertaken by Muir Environmental in June 2000 and ATA Environmental in December 2006 included the proposed clearing area.	Mount Gibson Mining Limited have applied for an Area Permit to clear up to 5.5 hectares of native vegetation at its Tallering Peak Iron Ore Mine, located approximately 63 kilometres north of Mullewa. The proposed clearing will allow stage 2 of the T6B pit development to be implemented. This involves expanding the currently approved pit footprint by 5.5 hectares along the south-western edge which will provide for an additional two years of mining of the pit (GHD, 2009).	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994); to Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994).	The vegetation condition rating is based on information (including photographs and aerial photographs) provided by Mount Gibson Mining Limited (2009) and GHD (2009). The Assessing Officer, Department of Mines and Petroleum (DMP), has visited the Tallering Peak Iron Ore mine on three separate occasions and is familiar with the mine site. The proposed clearing area has not been visited specifically, largely due to access and safety concerns given the steep, rocky nature of the area and its proximity to existing mining operations.

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 area applied to clear is within the Yalgoo Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). The Yalgoo bioregion is an interzone between the south-western and Murchison bioregions, and whilst it is rich and diverse in flora and fauna, most species are wide ranging and typically occur in one or more adjoining bioregions (CALM, 2002). Pastoralism is the dominant land use in the Yalgoo, comprising approximately 76% of the total land area (CALM, 2002). However, mining also has an increasing interest in the bioregion (CALM, 2002).

The proposed clearing area is located at the existing Tallering Peak Iron Ore Mine, situated approximately 63 kilometres north of Mullewa (GHD, 2007a). More specifically, the proposed clearing area includes a rocky, upperslope part of the Tallering Ridge, a Banded Ironstone Formation (BIF) some 8 kilometres long, striking north-east to south-west, and elevated some 150 metres above the natural surrounding ground surface level (GHD, 2007a). The Tallering Ridge is the largest and southernmost of three distinct BIF ridges that occur within the Tallering Peak mining leases. It consists of two prominent peaks, Tallering Peak and Tallering Hill. The apex of Tallering Hill has been removed by mining operations, whilst Tallering Peak is located north-east of current mining operations, further along the ridge (GHD, 2009). The Tallering Ridge is currently being mined and consists of the T2, T3, T4, T6A and T6B pits to date. Of the other two ridges, the Central Ridge has been

partly mined (T5 pit), whilst the Northern Ridge has not been mined to date (GHD, 2007a).

BIF's are characterised by unique geology, soils and relative isolation. As a consequence, BIF's provide unique habitat for flora and fauna species. The biodiversity value of BIF's relates to the endemic plant species, rare and restricted plant species and distinct communities that exist in these unique landscapes. The Department of Environment and Conservation (DEC), in conjunction with the Department of Industry and Resources (DoIR), undertook the "Strategic Review of the Conservation and Resource Values of the Banded Ironstone Formation of the Yilgarn Craton" to identify the biodiversity values and iron prospectivity of various BIF ridges in the Midwest and Goldfields. The purpose of this review was to provide additional information to allow the Western Australian government to take a strategic approach to resource utilisation and biodiversity conservation decision making (DEC & DoIR, 2007). In this review, DEC & DoIR (2007) rate the Tallering Peak to be a lower biodiversity value site in comparison to other BIF's in the Yilgarn Craton. This rating acknowledges that significant mining has already taken place at Tallering Peak.

CALM (2002) identifies the Tallering Peak Ironstone as a unique landform feature in the Yalgoo bioregion. Whilst a range of vegetation and flora surveys have been undertaken in the Tallering Peak area over the past 15 years, it is acknowledged that no regional vegetation survey has been undertaken to map the vegetation communities at a regional scale. Consequently, a poorly known Priority 1 Ecological Community is listed from the Tallering Peak area. This includes, but is not limited to, *Philotheca sericea* and *Thryptomene decussata* low shrublands (DEC, 2007). It is noted that GHD (2007a) have advised that this particular community is found on the southern slopes of the Tallering Ridge (outside of the proposed clearing area).

The biodiversity value of the Tallering Peak area is being significantly diminished by domestic goats which are the main livestock of the Tallering and Wandina pastoral stations (GHD, 2007a). The proponent has made some effort to curtail the detrimental impact that goat grazing is having upon native vegetation at Tallering Peak by establishing several Flora Management Zones (FMZ's) in and around the mine site. FMZ's are fenced off to protect Priority and significant flora and their habitat from grazing by goats, and also to restrict access to mine site personnel (ATA Environmental, 2007). The importance of Priority Flora and FMZ's is communicated to all mine site personnel through the induction process, and posters and signage around the site raise awareness of the existence of Priority Flora.

Whilst no detailed flora and vegetation survey has been undertaken to describe the biodiversity values of the proposed clearing area, it is not likely that the area supports a high level of biological diversity given its level of degradation from goat grazing and proximity to open pit mining operations. The area includes steep rocky slopes with little, if any, topsoil. Large Acacia shrubs grow to 3 metres and the understorey is sparse; with occasional shrubs to 0.5 metres (Mount Gibson Mining Limited, 2009). Photographs of the proposed clearing area provided by Mount Gibson Mining Limited support this information. Analysis of aerial photography provided by GHD (2009) shows that parts of the application area are completely devoid of vegetation. The proposed clearing area cannot be considered as an ecological linkage to other areas of native vegetation, nor does it represent an important remnant of native vegetation. Other BIF ridges and breakaways in the local area which are not subject to mining operations are more likely to support a higher level of biological diversity.

The most important floristic value of the proposed clearing area is the presence of 283 individuals of the locally significant species *Eremophila sp. Tallering Peak*. This represents approximately 4.5% of the known population (GHD, 2009). It should be noted that the majority of the *Eremophila sp. Tallering* Peak population outside of the application area is under no immediate threat from mining operations.

From a faunal perspective, Bamford Consulting Ecologists (2008) acknowledges that significant invertebrates have been recorded in the proposed clearing area; however these species are locally common to other BIF ridges and breakaways in the local area (Bamford Consulting Ecologists, 2008). The small size and degradation of the proposed clearing area render it unlikely to be significant habitat for vertebrate fauna species.

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

Methodology

ATA Environmental (2007).
Bamford Consulting Ecologists (2008).
CALM (2002).
DEC (2007).
DEC & DoIR (2007).
GHD (2007a).
GHD (2009).
Mount Gibson Mining Limited (2009).
GIS Database:
- Interim Biogeographic Regionalisation of 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

Bamford Consulting Ecologists (2003) undertook a fauna review and targeted fauna survey of the Tallering Peak area between 15 and 19 May 2003. The fauna review involved studying existing fauna information for the

Tallering Peak area, whilst the targeted fauna survey entailed searching for conservation significant vertebrate and invertebrate fauna which Ninox Wildlife Consulting (1995) had earlier identified as possibly occurring in the Tallering Peak area (Bamford Consulting Ecologists, 2003).

The targeted fauna survey conducted by Bamford Consulting Ecologists (2003) included a range of survey methods such as elliott trapping, harp trapping, spotlighting, systematic searches and opportunistic sightings, anabat recording (using a bat detector that records and transforms ultrasonic bat echolocation calls for analysis and identification with computer software), roost/nest searching and invertebrate pit trapping (Bamford Consulting Ecologists, 2003). The survey was hampered by inclement weather and limited by time constraints (Bamford Consulting Ecologists, 2003).

On the basis of existing records, species distributions and habitat preferences, a total of 247 vertebrate fauna species may occur in the Tallering Peak area, with a further 17 species now believed to be extinct (Bamford Consulting Ecologists, 2003). The targeted fauna survey conducted by Bamford Consulting Ecologists located 13 species not recorded by Ninox Wildlife Consulting in 1995, bringing the total number of fauna species actually recorded at the site to 116 (Bamford Consulting Ecologists, 2003).

The following conservation significant vertebrate taxa protected under the *Environment Protection and Biodiversity Conservation* (EPBC) *Act 1999* and/or the Western Australian *Wildlife Conservation Act 1950* were the subject of a targeted fauna search by Bamford Consulting Ecologists (2003): Malleefowl (*Leipoa ocellata*), Black-flanked Rock Wallaby (*Petrogale lateralis lateralis*), Peregrine Falcon (*Falco peregrinus*), Major Mitchell's Cockatoo (*Cacatua leadbeateri*) and the Western Spiny-tailed Skink (*Egernia stokesii badia*). Species listed on the Department of Environment and Conservation's (DEC's) Priority fauna list were also the subject of targeted searches and included: Bush Stone-curlew (*Burhinus grallarius*), Australian Bustard (*Ardeotis australis*), skink (*Cyclodomorphus branchialis*), and skink (*Lerista yuna*).

The Malleefowl (listed as Vulnerable under the *EPBC Act 1999* and Schedule 1 'Fauna that is rare or likely to become extinct', *Wildlife Conservation (Specially Protected Fauna) Notice 2008*) is not likely to be impacted by the proposed clearing. Bamford Consulting Ecologists (2003) spent approximately 13 person hours searching for the presence of Malleefowl mounds, of which none were located. The proposed clearing area is likely to be too rocky for the Malleefowl (Bamford Consulting Ecologists, 2003).

The Black-flanked Rock Wallaby (listed as Vulnerable under the *EPBC Act 1999* and Schedule 1 'Fauna that is rare or likely to become extinct', *Wildlife Conservation (Specially Protected Fauna) Notice 2008*) is deemed to be locally extinct from the Tallering Peak area (Bamford Consulting Ecologists, 2003). Whilst the proposed clearance area may provide suitable habitat for this species, no sightings were made despite exhaustive searches of rocky outcrops in the area (Bamford Consulting Ecologists, 2003).

A pair of Peregrine Falcons (listed as Schedule 4 'Other specially protected fauna' under the *Wildlife Conservation (Specialy Protected Fauna) Notice 2008*) were observed in the Tallering Peak area during the fauna survey by Bamford Consulting Ecologists, with a possible nest recorded on a rocky outcrop to the south of Tallering Hill (Bamford Consulting Ecologists, 2003). A Spring survey would be required to determine whether this species is breeding in the area (Bamford Consulting Ecologists, 2003). The Peregrine Falcon was also observed during the 1995 fauna survey of the Tallering Peak by Ninox Wildlife Consulting. Given that the Peregrine Falcon is a mobile and wide-ranging species, it is not likely that the proposed clearing will result in a loss of significant habitat for this species.

Major Mitchell's Cockatoo (listed as Schedule 4 - 'Other specially protected fauna' under the *Wildlife Conservation (Specially Protected Fauna) Notice 2008)* is likely to occur in the Tallering Peak area only as a vagrant (Bamford Consulting Ecologists, 2003). Whilst the Tallering Peak is within the known distribution of Major Mitchell's Cockatoo, the habitat is likely to be unsuitable (Bamford Consulting Ecologists, 2003). Major Mitchell's Cockatoo is dependent on tree hollows including large mallee Eucalypts for nesting (Pizzey & Knight, 1997), however vegetation in the Tallering Peak area typically consists of Mulga scrub which is unsuitable for nesting.

The Western Spiny-tailed Skink (listed as Endangered under the *EPBC Act 1999* and Schedule 1 'Fauna that is rare or likely to become extinct', *Wildlife Conservation (Specially Protected Fauna) Notice 2008*) was not recorded during the May 2003 fauna survey despite trapping and hand searching (Bamford Consulting Ecologists, 2003). This species was not found in the 1995 fauna survey by Ninox Wildlife Consulting, despite intensive trapping and searching. According to the Department of Environment and Water Resources (2007), this species is known to inhabit York Gum, Salmon Gum and Gimlet woodlands. Given that these vegetation types do not exist in the application area, it is unlikely that the Western Spiny-tailed Skink will be impacted by the proposed clearing.

The Bush Stone-curlew (listed as Priority 4 by the DEC) was not recorded from the Tallering Peak area in 1995, but was heard calling to the south-west of Tallering Peak in the May 2003 fauna survey (Bamford Consulting Ecologists, 2003). The proposed clearing area is not likely to provide suitable habitat for this species. The Bush Stone curlew prefers to inhabit sandplain areas with Spinifex grasses, mallee woodlands, dry and lightly timbered watercourses and coastal scrub (Pizzey & Knight, 1997). Suitable habitat does exist to the south-west of Tallering Peak along minor watercourses (Bamford Consulting Ecologists, 2003). The proposed clearing is not likely to result in a loss of significant habitat for the Bush Stone-curlew.

The Australian Bustard (listed as Priority 4 by the DEC) was not recorded in the fauna survey by Ninox Wildlife Consulting in 1995, or the May 2003 survey by Bamford Consulting Ecologists. This species is not likely to occur in the application area as the habitat is unsuitable, however the Australian Bustard may occur in the general area on a semi-regular basis. It is not likely to be impacted by the proposed clearing (Bamford Consulting Ecologists, 2003).

The skink *Cyclodomorphus branchialis* (listed as Priority 2 by the DEC) was not located in the Tallering Peak area despite intensive searches of suitable habitat in 1995 and 2003 (Ninox Wildlife Consulting, 1995; Bamford Consulting Ecologists, 2003). On this basis, it would appear unlikely to occur in the proposed clearance area (Bamford Consulting Ecologists, 2003).

The skink *Lerista yuna* (listed as Priority 3 by the DEC) is known only from areas north-east and south-east of Yuna (DEC, 2007), located approximately 65km south-west of the proposed clearing area (GIS Database). *Lerista yuna* was not found despite intensive searching of apparently suitable habitat in 1995 and 2003 (Ninox Wildlife Consulting, 1995; Bamford Consulting Ecologists, 2003). Based on this information, *Lerista yuna* is not likely to be present or subsequently impacted by the proposed clearing.

The Assessing Officer, DMP, notes that the proposed clearing area is small and consists of steep, rocky upper slope habitat on the Tallering Ridge. The area has been heavily impacted by goat grazing (Mount Gibson Mining Limited, 2009) and is on the periphery of open pit mining operations. Impacts from noise, dust and blasting would be expected. Given the above, the value of the area as habitat for vertebrate fauna species in general is not expected to be significant.

With respect to invertebrate fauna, Bamford Consulting Ecologists have undertaken surveys at Tallering Peak in May 2003, January 2008 and July 2008. The surveys targeted the Short-Range Endemic (SRE) fauna. SRE's have naturally small ranges, poor powers of dispersal and are often confined to specialised discontinuous habitats (Harvey 2002, cited in DEC & DoIR, 2007). The Banded Ironstone Formations of the Midwest are known to harbour an array of SRE's, particularly trapdoor spiders, millipedes and land snails (Harvey 2002, cited in DEC & DoIR, 2007). Given that Banded Ironstone Formations are relictual and fragmented habitat there is a potential for localised endemism.

The purpose of Bamford Consulting Ecologists' July 2008 survey was to assess the potential for the proposed clearing area to provide habitat for significant invertebrate fauna, and to determine the regional distribution of significant invertebrates. The survey focussed on a millipede named *Antichiropus sp. nov Tallering*, a camaenid snail species named *Pleuroxia bethana*, slaters and the Shield-backed Trapdoor Spider (*Idiosoma nigrum* - listed as Schedule 1 under the *Wildlife Conservation Act 1950*). These specimens had previously been collected from Tallering Peak during the 2003 and January 2008 surveys.

Bamford Consulting Ecologists' July 2008 survey was undertaken between 8 and 11 July and involved two persons searching for the above mentioned invertebrates within the proposed clearing area and at six other ranges and breakaways in the local area. Table 1 below summarises the survey findings:

Table 1: Summary of survey areas and locations where target invertebrate taxa were located (Bamford Consulting Ecologists, 2008):

Survey Area	Shield-backed Trapdoor Spider	Millipede	Snail	Slaters
Proposed clearing area	recorded	recorded	recorded	recorded
West Range	recorded	recorded	recorded	recorded
North Range	recorded	recorded	recorded	recorded
Tallering Peak	recorded	recorded	recorded	recorded
Little Knob north of Tallering Peak	recorded	recorded	recorded	recorded
Breakaway on North Boundary	recorded	recorded	recorded	recorded
Laterite Breakaway east of Tallering Peak	recorded	**not recorded**	recorded	recorded

Bamford Consulting Ecologists (2008) concluded that the proposed clearing area is habitat for significant invertebrates, however, based on the July 2008 survey results, the significant invertebrates all appear to be locally common and widespread in rocky hills in the Tallering region. As seen in Table 1, all invertebrates targeted were located at all of the survey locations, with the exception of the millipede which was not found at the laterite breakaway east of Tallering Peak. It is therefore unlikely that the proposed clearing area constitutes significant habitat for these species.

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

Methodology Bamford Consulting Ecologists (2003).
Bamford Consulting Ecologists (2008).

DEC (2007).
DEC & DoIR (2007).
Department of Environment and Water Resources (2007).
Mount Gibson Mining Limited (2009).
Ninox Wildlife Consulting (1995).
Pizzey & Knight (1997).

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

Comments

Proposal may be at variance to this Principle

There are no known records of Declared Rare Flora (DRF) species within the proposed clearing area (GIS Database).

Numerous flora and vegetation surveys have been conducted at Tallering Peak and surrounds between 1992 and 2008:

- Mattiske Consulting Pty Ltd (October 1992);
- Mattiske Consulting Pty Ltd (September 1994);
- Muir Environmental (October 1998);
- Muir Environmental (June 2000);
- ATA Environmental (September and December 2006);
- GHD (December 2006);
- GHD (August 2007);
- GHD (February 2008); and
- Coffey Environments (July 2008)

Whilst it is acknowledged that the scope, methods and intensity of these surveys has differed, it is noted that no DRF species were recorded during any of these flora surveys (GHD, 2009). It is therefore unlikely that the proposed clearing will have any impact upon DRF species.

Three Priority Flora species are known to occur at Tallering Peak and surrounds:

Micromyrtus placoides (P1) - Based on previous flora and vegetation surveys conducted at the Tallering Peak Iron Ore mine to date, Mount Gibson Mining Limited (2009) report that there is one known individual plant of this species within the proposed clearing area. According to Muir Environmental (2000) there is an estimated 50,000 plants of *M. placoides* across the Tallering Ridge, associated valley to the north-west, and several populations away from the main ridge. GHD (2007a) report that the plants are known to exist as 44 populations, ranging from a few plants to hundreds and to several thousand. GHD (2007a) estimate that approximately 4,200 plants of *M. placoides* have been cleared since the operation of the Tallering Peak Iron Ore Mine in 2003. The total cumulative loss of this species at Tallering Peak is therefore estimated at 8.4% (GHD, 2007a). This clearing proposal is unlikely to threaten the conservation status of *Micromyrtus placoides*.

Prostanthera petrophila (P1) - Based on previous flora and vegetation surveys conducted at the Tallering Peak Iron Ore mine to date, Mount Gibson Mining Limited (2009) report that there are no known individuals of this species within the proposed clearing area. This clearing proposal is unlikely to threaten the conservation status of *Prostanthera petrophila*.

Grevillea stenostachya (P3) - Based on previous flora and vegetation surveys conducted at the Tallering Peak Iron Ore mine to date, Mount Gibson Mining Limited (2009) report that there are no known individuals of this species within the proposed clearing area. This clearing proposal is unlikely to threaten the conservation status of *Grevillea stenostachya*.

One locally significant species, *Eremophila sp. Tallering Peak* (previously referred to as Eremophila aff. serrulata), occurs within the proposed clearing area. *Eremophila sp. Tallering Peak* was first collected from Tallering Peak by Muir Environmental in June 2000. Taxonomic studies have been undertaken on *Eremophila sp. Tallering Peak* for a number of years to determine whether the taxon is significantly different to the more common *Eremophila serrulata* (GHD, 2007b). Essentially, differences relate to leaf size and the presence of calyx lobe fringe hairs (GHD, 2008).

The phrase name *Eremophila sp. Tallering Peak* has been used by the Western Australian Herbarium since 2008, with the taxon being considered distinct enough to be considered a separate species. The phrase name will become official when specimens which are currently held at the herbarium are incorporated into the collection. Based on the number and distribution of known individuals, it is likely that the species will be nominated for Declared Rare Flora (DRF) status once the name becomes official (Mount Gibson Mining Limited, 2009).

A number of targeted surveys for *Eremophila sp. Tallering Peak* have been undertaken since it was first recorded by Muir Environmental in June 2000. These include:

- ATA Environmental (September and December 2006);
- GHD (August 2007 and February 2008); and

- Coffey Environments (July 2008).

As a result of these surveys, knowledge of the biology, taxonomy and distribution of *E. sp. Tallering Peak* has greatly improved. The species was originally collected in low numbers and was believed to be restricted to very steep, rocky upper slope habitat of the Tallering Peak ridgeline. Coffey Environments conducted the most recent survey for *E. sp. Tallering Peak* in July 2008 (importantly during the flowering season for this species), and made a number of important findings:

- 3,797 plants of *E. sp. Tallering Peak* were recorded along a major drainage line that runs in a north - south direction located east of Tallering Peak. The plants were located in sandy loams to clay loam soils over a distance of approximately 2.2 kilometres; and

- 648 plants were located in a minor drainage line that runs from the base of Tallering Peak in a south-east direction to join the major drainage line.

Coffey Environments (2008) noted that the abundance of *Eremophila sp. Tallering Peak* plants reduced significantly as soils became drier, believing that the species is moisture dependent. The July 2008 survey also shows that the species occurs not only on shallow soils on ridgelines, but also on loamy sands and clay loams within drainage lines.

Approximately 283 plants of *Eremophila sp. Tallering Peak* are proposed for clearing to implement the T6B Stage 2 expansion project. This represents approximately 4.5% of the total known population (6,207 plants). To examine the cumulative impact of this clearing proposal on *Eremophila sp. Tallering Peak*, it is necessary to consider the estimated 221 plants of *Eremophila sp. Tallering Peak* previously cleared for the construction of the T6A pit, and the estimated 137 plants approved for clearing in May 2008 as part of T6B Stage 1. This clearing proposal would take the cumulative loss of *E. sp. Tallering Peak* to 9.7%, or 641 plants of 6,565 recorded.

It is also necessary to consider secondary impacts that the proposed T6B Stage 2 project may have upon plants of *Eremophila sp. Tallering Peak* adjacent to the proposed impact zone. Mount Gibson Mining Ltd (2009) note that 108 plants of this species will remain in the area adjacent to T6B Stage 2 after clearing. Approximately 69 of the plants are located on the crest of the ridge, and consequently will not be subject to changes in surface water flow from the vegetation clearing and subsequent pit expansion. The remaining 39 plants located at the eastern edge of T6B Stage 2 will have their direct upperslope catchment reduced by an area of 0.058 hectares (580 square metres) which may result in a slight decrease in the amount of water available to these plants (Mount Gibson Mining Ltd, 2009). Secondary impacts associated with the mining operation itself such as dust and flyrock will be appropriately managed under the *Mining Act 1978* approval process.

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

Mount Gibson Mining Limited (2009) has a dedicated *Eremophila sp. Tallering Peak* seed storage facility at the Tallering Peak Iron Ore Mine. This facility currently houses a small amount of left over seed from last year's rehabilitation program, and more seed will be stored as it is acquired.

Mount Gibson Mining Limited (2009) has commissioned the Science Directorate at the Botanic Gardens and Parks Authority (BGPA) to conduct a one year research program on the propagation biology of *Eremophila sp. Tallering Peak*. The research program will focus on three areas:

- Asexual propagation;
- Seed biology; and
- Ex situ storage of germplasm.

The research program will allow a better understanding to be gained of the dormancy mechanism in seeds of *Eremophila sp. Tallering Peak* and provide a basic understanding of the propagation requirements of this species to facilitate the production of large numbers of plants for future reintroduction programs if required (Mount Gibson Mining Limited, 2009).

In addition, Mount Gibson Mining Ltd (2009) has lodged a letter of intent with DMP, proposing to construct a fence approximately 15 kilometres in length around the entire Tallering Peak mine site. Goats are a major threat to native vegetation (including *Eremophila sp. Tallering Peak*) at the mine site and the fence construction is a positive initiative that will effectively remove the grazing pressure on *Eremophila sp. Tallering Peak* plants at the site.

It is acknowledged the clearing associated with this proposal will directly result in the loss of conservation significant plant taxa. However, it considered that the scale of impact is unlikely to compromise the overall conservation status of *Eremophila sp. Tallering Peak*, particularly given its relative distribution outside of the area proposed to be cleared. Furthermore, it should be noted that the majority of the population recorded outside the application area is under no immediate threat from mining activities.

Methodology Coffey Environments (2008).
GHD (2007a).

GHD (2007b).
GHD (2008).
GHD (2009).
Mount Gibson Mining Limited (2009).
Muir Environmental (2000).
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 may be at variance to this Principle

There are no known Threatened Ecological Communities (TEC's) in the proposed clearing area (GIS Database; GHD, 2009). The nearest known TEC is located approximately 105 kilometres south-east (GIS Database).

A Priority 1 Ecological Community is present in the Tallering Peak area (GHD, 2009). Priority 1 Ecological Communities are defined as poorly known ecological communities with apparently few small occurrences, of which most are not actively managed for conservation (DEC, 2007). These communities are typically under immediate threat from known threatening processes across their range but have not been adequately surveyed for classification as TEC's (DEC, 2007). Priority 1 Ecological Communities are not formally protected under the EPBC Act 1999 (DEC, 2007). The 'Tallering Peak Vegetation Complexes' (Ironstone Range) Priority Ecological Community (PEC) has been described from Tallering Peak. This includes, but is not limited to, *Philotheca sericea* and *Thryptomene decussata* low shrublands (DEC, 2007). Known threats to the Tallering Peak PEC are mining and goats (CALM, 2002).

The Tallering Peak Ironstone is considered to be a rare feature of the Yalgoo bioregion due to its unique landforms and vegetation complexes (CALM, 2002). The vegetation communities of Tallering Peak have not been well researched, analysed or documented (particularly at the regional level), and are therefore difficult to quantify (DEC, 2007). It is possible that the vegetation of Tallering Peak could be classified as a TEC if a regional vegetation survey was undertaken and the Tallering Peak vegetation complexes were found to exist nowhere else (DEC, 2007).

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

It is worth noting that the proposed clearing area is small (5.5 hectares) and is significantly degraded by goat grazing and disturbance from adjacent mining operations. The conservation value of this area is likely to have been significantly compromised by these disturbance factors.

Methodology

CALM (2002).
DEC (2007).
GHD (2009).

(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 likely to be at variance to this Principle

The area applied to clear is within the Interim Biogeographic Regionalisation for Australia (IBRA) Yalgoo bioregion (GIS Database). According to Shepherd et al (2001) there is approximately 99% of the pre-European vegetation remaining in the Yalgoo bioregion.

The vegetation of the application area is classified as Beard Vegetation Association 228: Shrublands; *Acacia quadrimarginea* scrub (GIS Database). This Beard Vegetation Association is not well represented at the state or bioregional level (see table below).

Beard Vegetation Association 228 only occurs at two distinct locations within the Yalgoo bioregion, one of these being centred on the Tallering Peak Iron Ore Mine (GIS Database). An area of approximately 814 hectares has been mapped as Beard Vegetation Association 228 at the Tallering Peak location (GIS Database). Of concern is that this occurrence of Beard Vegetation Association 228 is entirely located on mining tenure, and Shepherd's (2001) figures do not include clearing of Beard Vegetation Association 228 since mining began at Tallering Peak in October 2003. The figure in the table below displaying 100% of Beard Vegetation Association 228 remaining is therefore considered out dated.

Beard Vegetation Association 228 is listed as a high priority for inclusion in the conservation reservation system by CALM (2002) in a Biodiversity Audit of the Yalgoo bioregion.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA bioregion – Yalgoo	5,057,673	5,007,353	~99	least concern	9.9
Beard veg assoc. – State					
228	10,384	10,384	~100	least concern	0
Beard veg assoc. – bioregion					
228	3,587	3,587	~100	least concern	0

* Shepherd et al. (2001) updated 2005
** Department of Natural Resources and Environment (2002)

However, the proposed clearing area is small (5.5 hectares) and has been significantly disturbed by goat grazing and mining operations. This area does not represent an important remnant of native vegetation in an area that has been extensively cleared. Similarly, the proposed clearing area is not likely to be important with respect to the overall conservation of Beard Vegetation Association 228 at the state or bioregional level.

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

Methodology CALM (2002).
Department of Natural Resources and Environment (2002).
Shepherd et al (2001).
GIS Database:
- Interim Biogeographic Regionalisation for Australia – Bioregions.
- Pre European Vegetation.

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments **Proposal is not at variance to this Principle**
The proposed clearing area is located on the Tallering Peak Ridge, elevated some 150 metres above the natural surrounding ground surface level (GHD, 2009).

There are no permanent watercourses or wetlands within the proposed clearing area (GHD, 2009; GIS Database). A number of small ephemeral streams are generated from flows off the Tallering Ridge, generally dispersing as overland sheetflow when they reach the surrounding flat plain (GHD, 2009). Sheetflows occur within 1 - 1.5 kilometres of the Tallering Ridge (GHD, 2009).

It is not expected that riparian native vegetation will be cleared under this proposal. No watercourses or wetlands will be directly impacted.

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

Methodology GHD (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 is not likely to be at variance to this Principle**
The area applied to clear is within the Tallering land system (GIS Database), as mapped by the Department of Agriculture Western Australia (1998). The Tallering land system is characterised by ridges and hills of banded ironstone which support bowgada and other Acacia shrublands (Department of Agriculture Western Australia, 1998). This description is consistent with the landform and vegetation types described from the Tallering Peak Iron Ore Mine by GHD (2007a). According to the Department of Agriculture Western Australia (1998), the Tallering land system is characterised by a stony surface mantle which provides effective protection against soil erosion. The disturbance or removal of this stony mantle may initiate soil erosion.

Within the proposed clearing area, it is expected that soils would be shallow (10 centimetres deep) and dominated by the presence of blocky fragmental rock material (80%) (GHD, 2007a). It is therefore expected that there would be minimal erodible material in the proposed pit expansion area. Mount Gibson Mining Ltd (2009) report that there is little, if any, salvageable topsoil material in the proposed clearing area due to its rocky nature. It is not envisaged that topsoil will be recovered during clearing operations. All cleared native vegetation will be stockpiled on the T4 waste dump for use in future rehabilitation (Mount Gibson Mining Ltd, 2009).

Given that the proposed clearing will allow for the extension of an open pit mining void which will result in a fundamental alteration of the land structure and topography, land degradation within the application area itself is not considered a major concern. Care will need to be taken during the clearing operations to ensure that land degradation does not occur off site. Mount Gibson Mining Ltd (2009) will employ an experienced bulldozer operator to undertake the clearing operations to ensure that scree and other rocky material on the upper slopes of the ridge is not moved down slope. Any earthmoving which is likely to cause the material to move downslope will be avoided (Mount Gibson Mining Ltd, 2009).

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

Methodology Department of Agriculture Western Australia (1998).
GHD (2007a).
Mount Gibson Mining Ltd (2009).

(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 area is located approximately 6.8km north-east of the 'A Class' Urawa Nature Reserve (GIS Database). There are no other conservation areas nearby (GIS Database). The area under application is located at the Tallering Peak Iron Ore Mine and is immediately adjacent to open pit mining operations, waste dumps and associated mining infrastructure (GHD, 2009). The proposed clearing area does not act as a significant remnant, buffer, or ecological linkage to the Urawa Nature Reserve.

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

Methodology GHD (2009).
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 is not likely to be at variance to this Principle**
There are no surface water features in the proposed clearing area (GHD, 2009; GIS Database). Surface water flows in the Tallering Peak area are restricted to significant rainfall events which may occasionally occur following cyclonic activity or thunderstorms (GHD, 2009). Flows generated off the Tallering Ridge are not likely to carry large amounts of suspended material given the poor soil coverage on the ridge. Water flowing off the ridge and onto the surrounding flat plain typically dissipates as overland sheetflow into surrounding native vegetation. It is unlikely that clearing on the Tallering Ridge for the T6B pit stage 2 expansion will result in sedimentation or turbidity of larger downstream watercourses such as the Bangemall Creek or the Greenough River.

Very little groundwater has been encountered during the mining operations at Tallering Peak (GHD, 2009). Groundwater is typically found in small quantities at depths greater than 25 metres below the surface (GHD, 2009). Dewatering at the site to date has not had any notable impacts upon the local native vegetation. The proposed vegetation clearing is not expected to have any significant impact upon groundwater levels or quality.

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

Methodology GHD (2009).
GIS Database:
- Hydrography, linear.

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

Comments **Proposal is not likely to be at variance to this Principle**
The average annual rainfall of Mullewa (the closest recording station to the proposed clearing area) is 339.5 millimetres (GHD, 2009). Average annual evaporation is in the range of 3000 millimetres (GIS Database). Winter rainfall is generally more significant, however summer rains associated with thunderstorms or tropical lows can bring substantial falls (GHD, 2009). Rainfall in semi arid areas typically infiltrates into the substrate or evaporates (GHD, 2009).

The proposed clearing area is located on a Banded Ironstone Formation (BIF) ridge, elevated some 150 metres above the surrounding plain (GHD, 2009). Such topography naturally facilitates runoff and discourages the ponding of water.

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

Methodology GHD (2009).

GIS Database:
- Evaporation Isopleths.

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

Comments

There are two native title claims over the area under application (GIS Database). These claims (WC96/093 & WC04/010) have been registered with the National Native Title Tribunal on behalf of the claimant groups (GIS Database). However, the mining 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 are no known registered Sites of Aboriginal Significance within the area applied to clear (GIS Database). The Tallering Peak itself is a site of Aboriginal Significance, however this is outside of the proposed clearing area and will not be impacted by this clearing proposal. 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.

On 9 January 2009, the Department of Mines and Petroleum (DMP) referred the Tallering Peak T6B (Stage 2) proposal to the Environmental Protection Authority (EPA) under Part IV, section 38 of the *Environmental Protection Act 1986*. On 9 February 2009, the EPA set the level of assessment on the proposal as 'Public Environmental Review' (a formal level of assessment under Part IV of the *Environmental Protection Act 1986*). Mount Gibson Mining Ltd appealed the level of assessment set by the EPA. The appeal was considered by the Office of the Appeals Convenor and it was determined that the appeal be upheld. On 16 March 2009, the EPA set the level of assessment on the proposal as 'Not Assessed - Managed under Part V of the EP Act (Clearing)'. The EPA will not formally assess the project but expects the proponent and relevant agencies to ensure that it is environmentally acceptable.

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.

No submissions were received from direct interest parties or members of the public when the clearing permit application was advertised for comment.

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

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

5. References

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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.