Department of Industry and Resources

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 1715/1
Permit type: Area Permit

1.2. Proponent details

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

1.3. Property details

Property: M70/896
Local Government Area: Shire of Mullewa
Colloquial name: Tallering Peak Iron Ore Mine - T2 Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
4.1		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
The area applied to clear has been broadly mapped at a scale of 1:250000 as: Beard Vegetation Association 228: Shrublands; *Acacia quadrimarginea* scrub (GIS Database). The area applied to clear was the subject of a flora survey between 20 - 21 December 2006 by GHD. The vegetation was described as follows: Quadrat one - *Acacia* low shrubland: *Acacia quadrimarginea*, over *Dodonaea viscosa subsp. spathulata*, *Philotheca sericea*, *Grevillea stenostachya, Eremophila forrestii*, *Solanum lasiophyllum*, *Brachycome* and fern species. Quadrat two - *Acacia* shrubland over low shrubs: *Acacia quadrimarginea*, *Acacia ramulosa var. linophylla* over *Dodonaea viscosa subsp. spathulata*, *Philotheca sericea*, *Thryptomene decussata*, *Grevillea stenostachya*, *Eremophila forrestii*, *Senna glutinosa subsp. chatelainiana*, *Solanum lasiophyllum*, *Cymbopogon* and fern species. Quadrat three - *Acacia* shrubland over low shrubs: *Acacia ramulosa var. linophylla* over *Phebalium tuberculosum*, *Philotheca sericea*, *Thryptomene decussata*, *Eremophila forrestii*, *Sida calyxhymenia*, *Solanum lasiophyllum*, and fern species.	This clearing permit application is for an Area permit to clear up to 4.1 hectares of native vegetation for the establishment of the T2 iron ore open cut pit, located at the Tallering Peak Iron Ore mine site (GHD, 2006). The Tallering Peak Iron Ore Project is located on an elevated ridge, approximately 150m above the level of the surrounding country (GHD, 2006). Esssentially, the T2 pit is a north-eastern extension of the existing T3 pit which was approved for mining in a Notice of Intent (now known as a Mining Proposal), submitted to the Department of Minerals and Energy (now DoIR) in 2003. The area of the proposed T2 pit was originally part of the T3 pit area that was approved in the Notice of Intent in 2003. The approval of this area for mining under the *Mining Act 1978* is still valid. The original 2003 proposal was referred to the EPA. The EPA did not formally assess the proposal. Approval for clearing of native vegetation was also approved in 2003, however this approval lapsed in July 2006, hence the requirement to obtain this clearing permit.	Completely Degraded: No longer intact; completely/almost completely without native species (Keighery 1994) to Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)	Approximately half of the 4.1 hectare application area has been completely cleared as a result of previous exploration activities (GHD, 2006). Disturbance of the proposed clearing area also exists in the form of goats, which are known to frequent the area. Dust from the adjacent T3 mining activities has also impacted upon the vegetation condition (GHD, 2006).

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 may 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 both 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 is within Mount Gibson Mining's Tallering Peak Iron Ore mine site, located approximately 50km north of Mullewa (GIS Database).

The proposed clearing area occurs on a banded ironstone formation (DEC, 2007). Banded ironstone formations are known to provide unique habitat for flora and fauna, with relatively high densities of resticted species and communities (DEC, 2007). The Tallering Peak area (including the area applied to clear) could contain significant vegetation communities that have not been well researched (particularly at the regional level), analysed or documented, and are thus difficult to quantify (DEC, 2007). Further research is required to determine whether the vegetation at Tallering Peak is well represented in other areas, or is restricted to Tallering Peak and therefore constitutes a Threatened Ecological Community (DEC, 2007).

Whilst Tallering Peak is a banded ironstone formation which may support a biologically diverse range of flora and fauna species and/or restricted communities, it must be stated that approximately half of the vegetation in the 4.1 hectare application area has been classified as 'completely degraded' (GHD,2006). This is largely the result of historic mineral exploration activities. Other disturbances such as goat grazing and dust have further degraded the vegetation subject to this application (GHD, 2006). These disturbances were observed by the assessing officer (DoIR) during a site visit on 21 March 2007. Other vegetated areas on Tallering Peak which have not been impacted by mining activities are far more likely to support a biologically diverse assemblage of flora and fauna species than the area under application.

Mount Gibson Mining established several 'Flora Management Zones' throughout the Tallering Peak Iron Ore Mine in 2003 in order to minimise the impacts of mining on Priority and significant flora and their associated habitat (GHD, 2006). These management zones preserve numerous individuals of the Priority 1 species *Micromyrtus placoides* and *Prostathera petrophila*, in addition to the significant *Eremophila aff. Serrulata* species on the steep eastern slopes of Tallering Range (ATA Environmental, 2004). Existing Flora Management Zones have been fenced off and sign posted to restrict vehicular and personnel access and to raise awareness of the presence of Priority and significant species (ATA Environmental, 2007). All Flora Management Zones undergo annual monitoring (ATA Environmental, 2004). As part of Mount Gibson Mining's ongoing commitment to vegetation and flora management, Mount Gibson Mining will extend an existing Flora Management Zone on the eastern slopes of Tallering Range. This Flora Management Zone will cover an area of approximately 34.8 hectares (GHD, 2006). The Flora Management Zone will be fenced along the southerrn boundary which will reduce the number of goats trampling and grazing on the vegetation, in addition to restricting access to vehicles and personnel (GHD, 2006). Signage will also be erected along the southern boundary of the Flora Management Zone to alert personnel to the presence of, and restricted access to, the area. Site induction training will educate all personnel of the existence of the Flora Management Zone, its Priority and significant species, and the restrcited access to such area (GHD, 2006). Fencing and signage will be erected after the construction of the abandonment bund, which will be aligned with the southern boundary of the Flora Management Zone (GHD, 2006). No fencing or signage is required along the northern extent of the Flora Management Zone, as this area is bounded by the crest of existing open cut pits. Three conditions have been placed on the clearing permit which will enforce Mount Gibson Mining's commitments to the Flora Management Zone. These include:

1. The Permit Holder shall ensure that all mine site induction training alerts personnel to the presence of, and restricted access to, Priority and significant Flora species that occur in the area cross-hatched red on attached Plan 1715/1.

2. The permit holder shall erect fencing along the southern boundary of the area cross hatched red on attached Plan 1715/1. The fence shall be constructed using ring lock fence materials with a top strand of barb wire.

3. The permit holder shall erect signs along the southern boundary of the area cross hatched red on attached Plan 1715/1. The signs shall read "Flora Management Zone - No Access Unless Authorised"; and

a). Signs shall be erected at such a distance that another sign can be observed in a direct line of sight.

The management of this extended Flora Management Zone and continual management of existing Flora Management Zones may be considered as an offset to the loss of the 4.1 hectare application area.

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

Methodology

GIS Database - IBRA - EA - 18/10/00.
ATA Environmental (2004).

CALM (2002).
DEC (2007).
GHD (2006).

(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 - 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, 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 listed 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*), Crested Bellbird (*Oreoica gutturalis gutturalis*), un-named skink (*Cyclodomorphus branchialis*), and un-named 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 (Specialy Protected Fauna) Notice 2006)* 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 clearance area is likely to be too rocky for the Malleefowl, however it may potentially occur in the surrounding plains (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 (Specialy Protected Fauna) Notice 2006*) is deemed to be locally extinct from the Tallering Peak area (Bamford Consulting Ecologists, 2003). Whilst the proposed clearance area provides 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 Falcon's (listed as *Schedule 4 – 'Other specially protected fauna'* under the *WA Wildlife Conservation Act 1950*) 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 the Tallering Hill Trig point. (Bamford Consulting Ecologists, 2003). This is outside of the clearing permit application area. 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 *WA Wildlife Conservation Act 1950*) 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 Motchell'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 a site visit to Tallering Peak by the assessing officer confirmed that none of these hollow bearing trees are present in the proposed clearing area.

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 (Specialy Protected Fauna) Notice 2006*) 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 given that it is a rocky and elevated environment. Bush Stone -curlews prefer 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 southwest 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 largely unsuitable, however the Australian Bustard may occur in the general area on a semi-regular basis. It is not likely to be significantly impacted by the proposed clearing (Bamford Consulting Ecologists, 2003).

The Crested Bellbird (listed as Priority 4 by the DEC) was heard calling throughout the study area by Bamford Consulting Ecologists (2003). The Tallering Peak area is within the intergrade zone between the south-western subspecies threatened by land clearing for agriculture (*O. g. gutturalis*) and the inland subspecies (*O. g. pallescens*). Based on this information, the birds which were heard calling are likely to have been intermediate in character and therefore not belonging to the priority taxon (Bamford Consulting Ecologists, 2003).

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 are (Bamford Consulting Ecologists, 2003).

Lerista yuna (listed as Priority 3 by the DEC) is known only from areas north east and south east of Yuna (DEC, 2007), which is 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 four most important habitats identified in the Tallering Peak area by Bamford Consulting Ecologists (2003) include a mine adit on the western side of Tallering Peak, breakaway areas, rocky outcrops on the Tallering Hill range and watercourses. Numerous fauna species rely on these habitats for roosting/nesting and feeding (Bamford Consulting Ecologists,2003).

The mine adit on the western side of Tallering Peak is an important roosting area for bats, with two locally significant species identifed from the adit: Hill's Sheathtail Bat (*Taphozous hilli*) and the Inland Cave Bat (*Vespadelus finlavsoni*). Two individuals of the locally significant Stimson's Python (*Antaresia stimsoni*) were also recorded from the mine adit (Bamford Consulting Ecologists, 2003). A site visit to Tallering Peak confirmed that the mine adit is more than 1km from the proposed clearing area and is not likely to be impacted.

Breakaway areas and rocky outcrops are present throughout the Tallering Peak area, and the 4.1 hectare application area (of which approximately half is completely degraded) is not likely to be representative of significant breakaway and rocky outcrop habitats.

The proposed clearing area does not contain any watercourses (GIS Database; GHD, 2006), which provide important feeding habitats for several indigenous fauna species.

Although banded ironstone formations such as Tallering Peak provide unique rocky habitats for indiginous fauna, those in the proposed clearing area are unlikely to be significant given the small size under application and the fact that the area has been highly disturbed by previous mineral exploration activities. Other habitats across the Tallering Range and associated valleys which have not been disturbed by mining activities are more likely to be representative of significant habitat for indigenous fauna.

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

Methodology

GIS Database:
- Hydrography, linear - DOE 01/02/04.
- Natmap 250K Series Mapping - GA 08/03 (Image).

Bamford Consulting Ecologists (2003).
Department of Environment and Water Resources (2007).
DEC (2007).
GHD (2006).
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 is not likely to be at variance to this Principle

There are no known records of Declared Rare Flora (DRF) species within the proposed clearing area (GIS Database). A flora survey of the proposed clearing area was undertaken by GHD between 20 -21 December 2006. No DRF species were recorded (GHD, 2006). Muir Environmental conducted two flora surveys of the Tallering Peak area between 11- 17 June 2000 and 5 - 7 October 1998. No DRF species were located during either survey (Muir Environmental, 1998; 2000). Spring flora surveys of the Tallering Peak project area were conducted by Mattiske Consulting Pty Ltd in 1992 and 1994. No DRF species were recorded on either occasion (Mattiske Consulting Pty Ltd, 1994). It is therefore unlikely that the proposed clearing will have any impact upon DRF species.

Approximately 150 individual plants of the Priority 3 species *Grevillea stenostachya* are located within the proposed clearing area (GHD, 2006). Numerous flora surveys of the Tallering Peak area have discovered an estimated 50,000 individual plants of this species on mining lease M70/896 (GHD, 2006). The proposed clearing of 150 plants of *G. stenostachya* represents approximately 0.3% of the total number on mining lease M70/896. Specimen records of *G. stenostachya* have also been recorded from the Carnarvon, Murchison and Geraldton Sandplains bioregions (Western Australian Herbarium, 2007). It is therefore unlikely that the proposed clearing will have a significant impact upon the conservation status of this species. However, DEC (2007) recommends that the proponent give due consideration to future developments within mining lease M70/896 to ensure cumulative losses of this species through incremental impacts (both direct and indirect) does not result in the loss of a viable population in the area.

Micromyrtus placoides, and *Prostanthera petrophila* are both Priority 1 species located in close proximity to the proposed clearing area (GHD, 2006). 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. None of these plants are located within the proposed clearing area (GHD, 2006). Approximately 1,300 *P. petrophila* plants are known from mining lease M70/896 (Muir Environmental, 2000). None of these plants are located within the proposed clearing area (GHD, 2006). Mount Gibson Mining established several Flora Management Zones at the Tallering Peak Iron Ore Mine in 2003 to protect Priority and other significant species and their habitat (GHD, 2006). The T3/T6 waste dump was designed in such a manner to conserve numerous individuals of *M. placoides and P. petrophila* in a Flora Management Zone (GHD, 2006). Another Flora Management Zone located to the east of the T5 pit also preserves these two species (GHD, 2006). Given that some individuals of *P. petrophila and M. placoides* are located approximately 50 - 150m from the proposed pit boundary, it is recommended that ongoing monitoring of these populations takes place to determine whether impacts from mining activities are having detrimental impacts (DEC, 2007). If monitoring results indicate that significant losses to these species could occur, then more effective management strategies should be developed and implemented (DEC, 2007).

In addition to the above mentioned Priority flora species, there are two species which may be of conservation significance. These are a potentailly new species of *Eremophila* similar to *Eremophila serrulata*, and *Hemigenia sp. Tallering* (GHD, 2006). Neither species are listed as DRF or Priority flora. Depending on the results of further taxonomic investigation, these species may become DRF or Priority flora species in the future. No specimens of these two significant species were recorded in the clearing permit application area in the December 2006 flora survey (GHD, 2006). In two targeted flora surveys in 2006, ATA Environmental located 1,431 individuals of *E. aff. serrulata* in steep and rocky upper slope habitats (ATA Environmental, 2007). Approximately 500 – 600 individuals of this plant will be preserved in a Flora Management Zone established by Mount Gibson Mining on the eastern side of Tallering Range (ATA Environmental, 2007).

Mount Gibson Mining Ltd will operate as per its Vegetation and Priority Flora Management Plan, which includes annual monitoring of vegetation and Priority Flora species for the life of the mining operation, consultation with the Department of Environment and Conservation (DEC) regarding Priority and significant flora species management at the mine site, the implementation of management strategies for these species as required, and site induction to raise awareness of Priority flora (ATA Environmental, 2004).

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

Methodology

GIS Database - Declared Rare and Priority Flora List - CALM 01/07/05.

ATA Environmental (2004).
ATA Environmental (2007).
DEC (2007).
GHD (2006).
Mattiske Consulting Pty Ltd (1994).
Muir Environmental (1998).
Muir Environmental (2000).
Western Australian Herbarium (2007).

(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, 2006). The nearest known TEC is located approximately 105km south east (GIS Database).

A Priority 1 Ecological Community is present in the Tallering Peak area. 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 *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* (DEC, 2007).

The area proposed to clear is located within the 'Tallering Peak Vegetation Complexes' (Ironstone Range) Priority Ecological Community (PEC). 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), both of which are present in the Tallering Peak area.

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).

Despite the significance of the Tallering Peak area as a Priority Ecological Community, it must be stated that approximately half of the area under application is classified as 'completely degraded' (GHD, 2006). GHD (2006) suggest that vegetation conserved on the eastern side of Tallering Range in a Flora Management Zone is representative of the PEC. This area has not suffered significant impacts associated with mining and will be fenced off and sign posted by the proponent in order to minimise goat grazing and restrict access to vehicles and personnel (GHD, 2006). No clearing is permitted within this Flora Management Zone. The preservation of this area may be considered as on offset to the loss of the area applied to clear.

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

Methodology

GIS Database - Threatened Ecological Communities - CALM 12/04/05.
ATA Environmental (2007).
CALM (2002).
DEC (2007).
GHD (2006).

(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 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 this bioregion. The vegetation of the application area is classified broadly as Beard Vegetation Association 228 - Shrublands; *Acacia quadrimarginea* scrub (GIS Database). Whilst none of this vegetation type is protected in reserves (Shepherd et al, 2001), Beard Vegetation Association 228 is not under immediate threat as approximately 100% remains (Shepherd et al, 2001). The proposed clearing will not reduce the extent of Beard Vegetation Association 228 below current recognised threshold levels, below which species loss increases significantly. The area proposed to clear does not represent a significant remnant of vegetation in the wider regional area.

	Pre-European Area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% in IUCN Class I-IV Reserves*
IBRA bioregion - Yalgoo	5,057,673	5,007,353	99%	Least concern	9.9%
Shire of Mullewa	1,076,999	615,440	~57%	Least concern	
Beard Vegetation Associations - -228	10,384	10,384	100%	Least concern	0%

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

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

Methodology GIS Database:
- IBRA - EA - 18/10/00.
- Pre-European Vegetation - DA 01/01.
Department of Natural Resources and Environment (2002)
Shepherd et al (2001).

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

Comments

Proposal is not likely to be at variance to this Principle

There are no permanent watercourses or wetlands in close proximity to the proposed clearing area (GIS Database; GHD, 2006). The seasonally flowing Greenough River is located approximately 4km south of the proposed clearing area, whilst numerous ephemeral tributaries flow out of Tallering Peak and dissapate as sheetflow and overland flow upon reaching the flat ground surrounding Tallering Peak (ATA Environmental, 2004).

The vegetation proposed to clear is growing in a rocky environment on an elevated banded ironstone ridge. The proposed clearing is not anticipated to have any impacts upon the Greenough River or its numerous seasonal tributaries which are located lower in the landscape.

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

Methodology GIS Database:
- Hydrography, linear - DOE 01/02/04.
- Lakes 1M - GA 01/06/00.
- Rivers 250K - GA.
ATA Environmental (2004).
GHD (2006).

(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 proposed clearing area by GHD (2006).

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. However, given the poor soil coverage on the Tallering Range there is likely to be a minimal amount of erodible material in the application area. (GHD, 2006). Given that the proposed clearing will allow for the development of an open pit mining void which will result in a fundamental alteration of the land structure and topography, soil erosion within the application area is not considered a major concern. To prevent erosion occurring outside of the clearance area, Mount Gibson Mining will implement appropriate management strategies as per its Notice of Intent to mine, Managed under the *Mining Act 1978* and approved by the Department of Minerals and Energy (now DoIR) in 2003. This includes the implementation of erosion control structures such as spur drains or contour banks at appropriate intervals to manage surface water flows on and off site (ATA Environmental, 2004).

The proposed clearing area receives a low average annual rainfall of 340mm (GHD, 2006), and a high average annual evaporation of approximately 3000mm (GIS Database). Based on this information, recharge to groundwater would be low, thereby reducing the likelihood of salinity increasing as a result of the proposed clearing. Similarly, the risk of waterlogging as a result of the proposed clearing is marginal considering that rainfall is infrequent and site topography facilitates surface water run off as opposed to ponding.

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

Methodology GIS Database:
- Evaporation Isopleths - BOM 09/98.
- Rangeland land system mapping - DA.
Department of Agriculture Western Australia (1998).
GHD (2006).

(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). This is the nearest conservation reserve to the proposed clearing area.

The area under application is disturbed by previous exploration activities and grazing by goats (GHD, 2006). Furthermore, the proposed clearance area is immediately adjacent to an existing open cut pit mining operation (GHD, 2006). It is therefore unlikely that this area acts as a significant remnant, buffer, or ecological linkage to any nearby conservation reserve.

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 - CALM 01/07/05.
GHD (2006).

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

Comments

Proposal is not likely to be at variance to this Principle

The proposed clearing has the potential to accelerate sediment transportation off site and into natural watercourses (GHD, 2006). However, given the poor soil coverage on the range proposed to clear this is likely to be minimal (GHD, 2006). Furthermore, rainfall in the area is low, and runoff from the proposed clearing area is only expected following significant rainfall events (GHD, 2006). ATA Environmental (2004) explain that the channels of the numerous small streams which flow out of Tallering Peak disappear when they reach the flat surrounding plain, and overland flow and sheetflow occurs. Given that the Greenough River is located approximately 4km south of Tallering Peak, it is highly unlikely that suspended material in run off water will reach any major watercourse (ATA Environmental, 2004).

Mount Gibson Mining will conduct all clearing and mining operations per its Surface Water Drainage Management Plan to ensure that sediment transportation off site is minimised, and alterations to natural watercourses are avoided (GHD, 2006). This will include:

- minimising vegetation clearing wherever possible;

- careful project scheduling to ensure construction immediately proceeds clearing wherever possible; and

- bunding around pit and access areas to divert stormwater runoff. Water will be diverted along cleared areas, away from natural vegetation.

Groundwater in the Tallering Peak area is predominantly brackish, with salinities in the range of 2000-4000mg/L TDS (ATA Environmental, 2004). The groundwater table in the Tallering Peak area is generally at a depth of more than 30m (ATA Environmental, 2004). Given the depth and salinity of the groundwater, it is unlikely that it is used by the vegetation (ATA Environmental, 2004). The proposed clearing is therefore unlikely to have any impact upon the groundwater depth and/or quality.

According to ATA Environmental (2004) the Tallering Peak area is considered unlikley to support groundwater-dependent ecosystems such as stygofauna. Groundwater depth and salinity are unlikely to provide suitable habitat and a food source for stygofauna (ATA Environmental, 2004).

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

Methodology

ATA Environmental (2004).
GHD (2006).

(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 proposed clearing area is located on an elevated banded ironstone ridge (DEC, 2007). The topography of the site naturally facilitates run off and discourages the ponding of water (ATA Environmental, 2004). The proposed clearing of a small amount of native vegetation is unlikely to alter this natural surface water flow regime.

The average annual rainfall of the application area is approximately 340mm, with annual evaporation rates in the range of 3000mm (GIS Database; GHD, 2006). It is therefore expected that there would be little surface water flow during normal seasonal rains.

The proposed clearing is not expected to increase the incidence or intensity of natural flood events which may

occasionally occur in the local area as a result of cyclonic activity. Based on the above, the proposed clearing is not likely to be at variance to this principle.

Methodology GIS Database:
- Evaporation Isopleths - BOM 09/98.
ATA Environmental (2004).
DEC (2007).
GHD (2006).

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

Comments

The clearing permit application was advertised by DoIR, inviting submissions from the public. One public submission was received, raising concerns regarding the potential impacts of the proposed vegetation clearing on Sites of Aboriginal Significance and Native Title rights.

There are two native title claims over the area under application. These claims (WC96/093) and (WC01/003) 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 is one registered Site of Aboriginal Significance within the area applied to clear (Tallering Peak, Site ID 4454) (GIS Database). 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.

Methodology GIS Database:
- Aboriginal Sites of Significance - DIA 04/07/02.
- Native Title Claims - DLI 19/12/04.

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Mineral Production	Mechanical Removal	4.1	**Grant**	The clearing principles have been addressed and the proposed clearing may be at variance to principle (a) and (d), is not likely to be at variance to principle (b), (c), (f), (g), (h), (i) or (j), and is not at variance to principle (e). The assessing officer recommends that the clearing permit be granted, subject to the following conditions: 1. The Permit Holder shall ensure that all mine site induction training alerts personnel to the presence of, and restricted access to, Priority and significant Flora species that occur in the area cross-hatched red on attached Plan 1715/1. 2. The permit holder shall erect fencing along the southern boundary of the area cross hatched red on attached Plan 1715/1. The fence shall be constructed using ring lock fence materials with a top strand of barb wire. 3. The permit holder shall erect signs along the southern boundary of the area cross hatched red on attached Plan 1715/1. The signs shall read "Flora Management Zone - No Access Unless Authorised"; and a). Signs shall be erected at such a distance that another sign can be observed in a direct line of sight.

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.
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.