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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4294/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **BHP Billiton Iron Ore Pty Ltd**

1.3. Property details

Property: Miscellaneous Licence 45/190
Local Government Area: Town of Port Hedland
Colloquial name: Mooka Tempoary Construction Camp

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
110		Mechanical Removal	Construction Camp and Associated Activities

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 2 June 2011

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 for the whole of Western Australia and are useful to look at vegetation in a regional context. The following Beard vegetation associations have been mapped within the application area (GIS Database): 93: Hummock grasslands, shrub steppe; kanji over soft spinifex; 589: Mosaic: Short bunch grassland – savanna/grass plain (Pilbara) / Hummock grasslands, grass steppe; soft spinifex; and 647: Hummock grasslands, dwarf-shrub steppe; *Acacia translucens* over soft spinifex. A Level 2 flora and vegetation survey of the application area was conducted by ENV Australia in October 2007 and May 2008. The following four vegetation communities were mapped within the application area (ENV Australia, 2009): 1. Major Drainage Line B: A low open *Eucalyptus victrix* woodland over an *Acacia tumida* var. *pilbarensis* and *Acacia colei* var. *colei* shrubland over a very open *Triodia epactia* hummock grassland; 2. Sandplain O: Scattered low *Eucalyptus victrix* and *Corymbia hamersleyana* trees over an open *Acacia ancistrocarpa, Acacia tumida* var. *pilbarensis, Acacia inaequilatera* and *Acacia trudgeniana* shrubland over a low open *Acacia stellaticeps* shrubland over a *Triodia epactia* and *Triodia lanigera* hummock grassland; 3. Sandplain P: A low open *Eucalyptus victrix, Corymbia hamersleyana* and *Corymbia flavescens* woodland over an open *Acacia colei* var. *colei* shrubland over a low open *Acacia*	BHP Billiton Iron Ore has applied to clear up to 110 hectares within an application area of approximately 860 hectares (GIS Database). The application area is located approximately 19.5 kilometres south of Port Hedland (GIS Database). The proposed clearing is for the construction of a temporary camp. This will include geotechnical investigations, access tracks, borrow pits, laydown areas, accommodation, waste water treatment plant, fuel storage and a helicopter pad.	Pristine: No obvious signs of disturbance (Keighery, 1994); to Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).	The vegetation condition was assessed by botanists from ENV Australia. The vegetation condition was described using a scale based on Trudgen (1988) and has been converted to the corresponding condition from the Keighery (1994) scale.

stellaticeps and *Pluchea tetranthera* shrubland over a *Triodia epactia* hummock grassland; and

4. Sandplain Q: Scattered low *Corymbia flavescens* trees over an open *Acacia ancistrocarpa* and *Acacia bivenosa* shrubland over scattered low *Acacia stellaticeps* shrubs over a *Triodia epactia* and *Triodia lanigera* hummock grassland.

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 flora and vegetation survey of the application area recorded four different vegetation communities (ENV Australia, 2009). The vegetation of the application area ranged from 'pristine' to 'excellent' with the majority of the application area considered to be in 'pristine' condition (ENV Australia, 2009). There has been no Threatened or Priority Ecological Communities recorded within the application area (ENV Australia, 2009; GIS Database).

There has not been any Declared Rare or Priority Flora recorded within the application area (ENV Australia, 2009; GIS Database). The vegetation communities are found throughout the local area and are not expected to contain a high level of floristic diversity compared to surrounding vegetation.

A desktop review identified a total of 217 fauna species that have the potential to occur within the application area (ENV Australia, 2011). However, given that the majority of the application consists of sandplain habitat which is consistent with similar habitat in the local area, it is not likely to contain a higher level of faunal diversity than surrounding areas.

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

Methodology

ENV Australia (2009)
ENV Australia (2011)
GIS Database:
- Declared Rare and Priority Flora List
- Threatened Ecological Sites Buffered

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments

Proposal is not likely to be at variance to this Principle

A Level 1 fauna survey was conducted over the application area by ENV Australia in February 2011. This survey identified two broad fauna habitats within the application area: sandplain and minor drainage line (ENV Australia, 2011).

The sandplain habitat is of low complexity and characterised by *Acacia stellaticeps* shrubs over hummock grassland of *Triodia epactia, Triodia secunda* and *Triodia schinzii* (ENV Australia, 2011). Due to the low vegetation complexity, the microhabitats are restricted to leaf litter and soft soils suitable for burrowing (ENV Australia, 2011). The vegetation of this habitat was burnt in 2010 which further reduces its ability to support fauna (ENV Australia, 2011). This habitat is consistent with similar habitat in the vicinity and is widespread in the bioregion (ENV Australia, 2011).

The vegetation of the minor drainage lines is dominated by *Eucalyptus* species and contains an abundance of microhabitats such as logs, hollows, leaf litter and soil suitable for burrowing (ENV Australia, 2011). This habitat is consistent with similar habitat within the local area (ENV Australia, 2011). However, it has value as an ecological link enabling the movement of fauna across the landscape, particularly species such as small birds that require extensive vegetation cover (ENV Australia, 2011). BHP Billiton Iron Ore (2011) has indicated that this habitat type will be avoided during the proposed clearing.

There is the potential for a number of conservation significant fauna to utilise the application area. However, based on the habitats present and the ecology of these species, the application area is not likely to represent significant habitat (ENV Australia, 2011).

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

Methodology

BHP Billiton Iron Ore (2011)
ENV Australia (2011)

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

Comments

Proposal is not likely to be at variance to this Principle

According to available databases, there are no records of Declared Rare Flora (DRF) within the application area (GIS Database). A flora survey over the application area was conducted by ENV Australia in October 2007 and May 2008. This flora survey did not record any DRF (ENV Australia, 2009).

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

Methodology

ENV Australia (2009)
GIS Database:
- Declared Rare and Prioirty Flora List

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

Comments

Proposal is not likely to be at variance to this Principle

According to available database, there are no records of Threatened Ecological Communities (TECs) within the application area (GIS Database). A vegetation survey of the application area was conducted by ENV Australia in October 2007 and May 2008. No vegetation communities within the application area were identified as being a TEC (ENV Australia, 2009).

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

Methodology

ENV Australia (2009)
GIS Database:
- Threatened Ecological Sites Buffered

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

Comments

Proposal is not at variance to this Principle

The application area falls within the Pilbara Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 99.9% of the Pre-European vegetation remains (see table) (GIS Database, Shepherd, 2009).

The vegetation of the application area has been mapped as the following Beard vegetation associations (GIS Database):

93: Hummock grasslands, shrub steppe; kanji over soft spinifex;
589: Mosaic: Short bunch grassland – savanna/grass plain (Pilbara) / Hummock grasslands, grass steppe; soft spinifex: and
647: Hummock grasslands, dwarf shrub steppe: *Acacia translucens* over soft spinifex.

According to Shepherd (2009) approximately 100% of these Beard vegetation associations remains at both a state and bioregional level. Therefore the area proposed to be cleared does not represent a significant remnant of native vegetation within an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,193	17,785,000	~99.9	Least Concern	6.3
Beard veg assoc. – State					
93	3,044,308	3,044,249	~100	Least Concern	0.4
589	809,754	809,637	~100	Least Concern	1.6
647	196,372	196,372	~100	Least Concern	No data available
Beard veg assoc. – Bioregion					
93	3,042,113	3,042,064	~100	Least Concern	0.4
589	730,718	730,683	~100	Least Concern	1.8
647	196,371	196,371	~100	Least Concern	No data available

* Shepherd (2009)

** Department of Natural Resources and Environment (2002)

Options to select from: Bioregional Conservation Status of Ecological Vegetation Classes (Department of Natural Resources and Environment 2002)

Presumed extinct	Probably no longer present in the bioregion
Endangered	<10% of pre-European extent remains
Vulnerable	10-30% of pre-European extent exists
Depleted	>30% and up to 50% of pre-European extent exists
Least concern	>50% pre-European extent exists and subject to little or no degradation over a majority of this area

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

Methodology
Department of Natural Resources and Environment (2002)
Shepherd (2009)
GIS Database:
- IBRA WA (Regions – Sub Regions)
- Pre-European Vegetation

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

Comments

Proposal is at variance to this Principle

There are two minor non-perennial watercourses within the application area (GIS Database). The vegetation unit mapped over these watercourses is Major Drainage Line B (ENV Australia, 2009). This vegetation community has also been recorded from areas outside the application area (ENV Australia, 2011). BHP Billiton Iron Ore (2011) has indicated that this vegetation community will be avoided during the proposed clearing activities.

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

Methodology
BHP Billiton Iron Ore (2011)
ENV Australia (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 application area has been mapped as occurring on the Uaroo land system (GIS Database). This land system is generally not susceptible to erosion or significant vegetation degradation apart for some erosion on areas of drainage tracts (Van Vreeswyk et al., 2004). There are some areas of drainage tracts present within the application area, however, BHP Billiton Iron Ore (2011) has indicated that these areas will be avoided during the proposed clearing.

At a broad scale the surface soil pH of the application area is 6.0 to 6.5 and there is a low probability of acid sulphate soils in the majority of the application area (CSIRO, 2009). The average annual evaporation rate is over 11 times the annual average rainfall so there is a low probability of the proposed clearing causing increased groundwater recharge resulting in rising saline water tables (Bureau of Meteorology, 2011; GIS database).

BHP Billiton Iron Ore Pty Ltd (2011) has indicated that if there are areas where the potential for erosion is high, appropriate erosion control measures such as gabions, rip rap rock protection and reno mattresses will be implemented. Potential impacts from erosion may be minimised by the implementation of a staged clearing condition.

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

Methodology
BHP Billiton Iron Ore (2011)
Bureau of Meteorology (2011)
CSIRO (2009)
Van Vreeswyk et al. (2004)
GIS Database:
- Evaporation Isopleths
- Rangeland Land System Mapping

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

Comments

Proposal is not likely to be at variance to this Principle

The application area does not lie within any conservation areas or DEC managed tenure (GIS Database). The nearest onshore conservation reserve is the Mungaroona Range Nature Reserve approximately 100 kilometres south-west of the application area (GIS Database). Based on the distance between the application area and the nature reserve, the proposed clearing is not likely to impact the environmental values of any conservation areas.

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

Methodology

GIS Database:
- DEC Tenure

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

Comments

Proposal is not likely to be at variance to this Principle

The application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database).

There are two minor non-perennial watercourses that extend into the application area (GIS Database). The majority of the surface water within the application area is likely to occur as sheet flow following heavy rains. With an annual evaporation rate over 11 times the average annual rainfall any surface water is likely to evaporate quickly (Bureau of Meteorology; 2011; GIS Database). BHP Billiton Iron Ore (2011) has indicated that these drainage lines will be avoided during the proposed clearing.

The groundwater within the application area is between 1,000 - 3,000 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database). This is considered to be brackish. The proposed clearing is not likely to cause salinity levels within the application area to alter.

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

Methodology

BHP Billiton Iron Ore (2011)
Bureau of Meteorology (2011)
GIS Database:
- Evaporation Isopleths
- Groundwater Salinity, Satewide
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)

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

Comments

Proposal is not likely to be at variance to this Principle

With an average annual rainfall of 314.2 millimetres and an average annual evaporation rate of 3,400 – 3,600 millimetres there is likely to be little surface flow during normal seasonal rains (Bureau of Meteorology, 2011; GIS Database). Whilst large rainfall events may result in the flooding of the area, the proposed clearing is not likely to lead to an increase in incidence or intensity of flooding.

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

Methodology

Bureau of Meteorology (2011)
GIS Database:
- Evaporation Isopleths

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

Comments

There is one native title claim over the area under application (GIS Database). This claim (WC99/3) has been registered with the National Native Title Tribunal on behalf of the claimant group (GIS Database). However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

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

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

The clearing permit application was advertised on 4 April 2011 by the Department of Mines and Petroleum inviting submissions from the public. There were no submissions received.

Methodology GIS Database:
- Aboriginal Sites of Significance
- Native Title NNTT

4. References

BHP Billiton Iron Ore (2011) Mooka Temporary Construction Camp. Supporting documentation for a clearing permit application dated March 2011.

Bureau of Meteorology (2011) BOM Website - Climate statistics for Australian locations, Averages for Port Hedland Airport. Available online at: http://www.bom.gov.au/climate/averages/tables/cw_004032.shtml Accessed on 25 May 2011.

CSIRO (2009) Australian Soil Resource Information System. Available online at: http://www.asris.csiro.au/index_ie.html Accessed on 25 May 2011.

Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.

ENV Australia (2009) Outer Harbour Development Plan. Unpublished report for BHP Billiton Iron Ore dated October 2009.

ENV Australia (2011) Mooka West Fauna Assessment. Unpublished report for BHP Billiton Iron Ore dated March 2011.

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

Shepherd, D.P. (2009) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.

Trudgen M.E. (1988) A Report on the Flora and Vegetation of the Port Kennedy Area. Unpublished report prepared for Bowman Bishaw and Associates, West Perth.

Van Vreeswyk, A.M, Payne, A.L, Leighton, K.A & Hennig, P (2004) Technical Bulletin No. 92: An inventory and condition survey of the Pilbara region, Western Australia. Department of Agriculture, South Perth, Western Australia.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
CALM	Department of Conservation and Land Management (now DEC), Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DEC), 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 (now DEC), Western Australia
DoIR	Department of Industry and Resources (now DMP), Western Australia
DOLA	Department of Land Administration, Western Australia
DoW	Department of Water
EP Act	Environmental Protection Act 1986, Western Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
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 Act	Rights in Water and Irrigation Act 1914, Western Australia
s.17	Section 17 of the Environment Protection Act 1986, Western Australia
TEC	Threatened Ecological Community

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.