Government of Western Australia
Department of Mines and Petroleum

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4237/1
Permit type: Purpose Permit

1.2. Proponent details

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

1.3. Property details

Property: Miscellaneous Licence 45/194
Local Government Area: Town of Port Hedland
Colloquial name: Bore Creek Levee Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
9.7		Mechanical Removal	Mineral Production

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 7 April 2011

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

Beard vegetation associations have been mapped at a 1:250,000 scale for the whole of Western Australia. One Beard vegetation association has been mapped within the application area (GIS Database; Shepherd, 2009).

93: Hummock grasslands, shrub steppe; kanji over soft spinifex.

A flora and vegetation survey of the application area was conducted by ENV (2010a) on 6 March 2010. Two vegetation types, *Triodia* very Open hummock Grassland and Completely Degraded, were identified during the ENV (2010a) survey. From these vegetation types a total of four vegetation associations were identified:

1a: *Triodia* very open Hummock Grassland – Scattered hummock grass of *Triodia epactia* with scattered shrubs of *Acacia inaequilatera* with low scattered shrubs of *Corchorus elachocarpus, Sida* sp. Pilbara and *Acacia ancistrocarpa* on orange, brown sandy loam on plains;

1b: *Triodia* Very Open Hummock Grassland – Very open hummock grassland of *Triodia epactia* and *Triodia secunda* with scattered shrubs of *Acacia ancistrocarpa, Acacia inaequilatera* and *Abutilon dioicum* with scattered low shrubs of *Acacia stellaticeps* and *Acacia pyrifolia* on orange, brown sandy loam on plains;

1c: *Triodia* Very Open Hummock Grassland – Very open hummock grassland of *Triodia epactia* and *Triodia secunda* with scattered shrubs of *Acacia inaequilatera* and *Hakea lorea* subsp. *lorea* with scattered low shrubs of *Corchorus elachocarpus*, *Acacia ancistrocarpa* and *Senna notabilis* on orange, brown sandy loam on plains; and

1d: *Triodia* Very Open Hummock Grassland – Scattered hummock grass of *Triodia secunda* with scattered shrubs of *Acacia inaequilatera* with low scattered shrubs of *Acacia ancistrocarpa* and *Corchorus elachocarpus* on orange, brown sandy loam on plains (BHP Billiton, 2011).

Clearing Description

BHP Billiton Iron Ore Pty Ltd has applied to clear up to 9.7 hectares of native vegetation for the purpose of reinstating and repairing a levee bank along existing railway infrastructure.

Vegetation Condition

Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994);

To

Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).

Comment The application area is located within the Pilbara region of Western Australia and is situated approximately 33 kilometres south of Port Hedland (GIS database).

3. Assessment of application against clearing principles

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

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

The application area occurs within the Chichester (PIL1) sub-region of the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). This sub-region is characterised by undulating Archaean granite and basalt plains include significant areas of basaltic ranges (CALM, 2002). Broadly, the plains support a shrub steppe characterised by *Acacia inaequilatera* over *Triodia wiseana* (formerly *Triodia pungens*) hummock grasslands, while *Eucalyptus leucophloia* tree steppes occur on ranges (CALM, 2002).

A vegetation survey of the application area, conducted by ENV (2010a) on 6 March 2010, identified four vegetation associations within the application area. During the vegetation survey, 38 vascular plant taxa from 26 plant genera and 16 plant families were recorded within the application area (ENV, 2010a). The vegetation within the application area is not considered to contain vegetation in better condition than similar vegetation within the vicinity of the survey area (BHP Billiton, 2011). It is therefore considered unlikely that the application area contains higher levels of floral diversity than the surrounding areas.

One Priority 1 species, *Heliotropium muticum*, has been recorded at one location within the application area (ENV, 2010a). Given that ENV (2010a) only recorded two individual plants at this location, it is considered unlikely that the proposed clearing will impact the conservation status of this species.

A vegetation survey conducted by ENV (2010a) recorded two weed species, *Aerva javanica* and *Citrullus colocynthis*, within the application area. Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. This can in turn lead to greater rates of infestation and further loss of biodiversity if the area is subject to repeated fires. Neither of these species are listed as 'Declared Plant' species under the *Agriculture and Related Resources Protection Act 1976* by the Department of Agriculture and Food. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

A vertebrate fauna survey was conducted by ENV (2010b) on 6 March 2010. No fauna were recorded and only one habitat type, Sandplains, was identified during the fauna survey (ENV, 2010b). Similar habitat is well represented and widespread outside the project area (BHP Billiton, 2011). It is therefore considered unlikely that the proposed clearing will significantly impact on the faunal diversity of the region. This survey also identified the possibility for nine conservation significant fauna to occur within the application area (ENV, 2010b). None of these conservation significant fauna are considered likely to occur within the application area (ENV, 2010b).

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

Methodology
BHP Billiton (2011)
CALM (2002)
ENV (2010a)
ENV (2010b)
GIS Database:
- IBRA WA (regions – subregions)

(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**

ENV (2010b) conducted a fauna survey of the application area on 6 March 2010. This survey identified one fauna habitat, Sandplains, occurring within the application area (ENV, 2010b). This habitat is considered to be of moderate habitat value however, much of the application area has a relatively high level of disturbance therefore reducing its overall value (ENV, 2010b). As this habitat is well represented and widespread outside the application area and given the small size (9.7 hectares) and previously disturbed nature of the application area, it is likely that any fauna inhabiting the survey area will be able to easily disperse to nearby, undisturbed areas (BHP Billiton, 2011). It is therefore considered unlikely that the proposed clearing will have a significant impact on habitat for fauna indigenous to Western Australia.

A fauna survey conducted over the application area by ENV (2010b) identified the possibility for the following nine conservation significant fauna to occur within the application area:

- Peregrine Falcon: Schedule 4, *Wildlife Conservation Act 1950;*
- Woma: Schedule 4, *Wildlife Conservation Act 1950* and Priority 1 on the DEC's Threatened and Priority Fauna list;
- Australian Bustard: Priority 4 on the DEC's Threatened and Priority Fauna list;
- Bush Stone-curlew: Priority 4 on the DEC's Threatened and Priority Fauna list;

- Flock Bronzewing: Priority 4 on the DEC's Threatened and Priority Fauna list;
- Grey Falcon: Priority 4 on the DEC's Threatened and Priority Fauna list;
- Eastern Osprey: Migratory , *Environmental Protection and Biodiversity Conservation (EPBC) Act 1999*;
- Rainbow Bee-eater: Migratory, *EPBC Act 1999;* and
- White Bellied Sea Eagle: Migratory, *EPBC Act 1999* (ENV, 2010b).

All of these species are known from a wide distribution and are not likely to be dependent on the application area (9.7 hectares). If any of these species are to occur within the application area it is considered unlikely that the proposed clearing will impact upon any conservation status.

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

Methodology BHP Billiton (2011)
ENV (2010b)

(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 GIS Databases there are no known records of Declared Rare Flora (DRF) within the application area (GIS Database).

A flora survey was conducted over the application area by staff from ENV (2010a). No DRF or species listed under the *Environment Protection and Biodiversity Conservation Act 1999* were recorded within the application area (BHP Billiton, 2011).

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

Methodology BHP Billiton (2011)
ENV (2010a)
GIS Database:
- Declared Rare and Priority Flora List

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

Comments **Proposal is not likely to be at variance to this Principle**
According to available GIS Databases there are no known records of Threatened Ecological Communities (TEC's) within the application area (GIS Database). The nearest known TEC is located approximately 184 kilometres south-west of the application area (GIS Database). At this distance there is little likelihood of any impact to the TEC as a result of the proposed clearing.

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

Methodology 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 Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). Shepherd (2009) reports that approximately 99.89% of the pre-European vegetation remains in the bioregion.

The vegetation within the application area is recorded as Beard vegetation association:

93: Hummock grasslands, shrub steppe; kanji over soft spinifex.

According to Shepherd (2009) approximately 100% of this Beard association remains within the Pilbara bioregion (see table on next page).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Pilbara	17,804,193	17,785,001	~99.89	Least Concern	~6.32
Beard vegetation associations - State					
93	3,044,308	3,044,249	~100	Least Concern	~0.42
Beard vegetation associations - Bioregion					
93	3,042,113	3,042,064	~100	Least Concern	~0.42

* Shepherd (2009)
** Department of Natural Resources and Environment (2002)

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

Methodology Department of Natural Resources and Environment (2002)
Shepherd (2009)
GIS Database:
- IBRA WA (regions – subregions)
- 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**
According to available GIS Databases there are no wetlands or watercourses within the application area (GIS Database).

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

Methodology GIS Database:
- Hydrography, linear

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

Comments **Proposal may be at variance to this Principle**
According to available GIS Databases the application area lies within the Macroy land system (GIS Database).

The Macroy land system is described as stony plains and occasional tor fields based on granite supporting hard and soft Spinifex grasslands (Van Vreeswyk at al., 2004). According to Van Vreeswyk et al. (2004) this land system has a low or very low erosion hazard, however without vegetation cover for prolonged periods of time there may be some erosion risk.

Based on the above the proposed clearing may be at variance to this Principle. Potential land degradation impacts as a result of the proposed clearing may be minimised by the implementation of a rehabilitation condition.

Methodology Van Vreeswyk et al. (2004)
GIS Database:
- Rangeland Land System Mapping

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

Comments **Proposal is not likely to be at variance to this Principle**
The proposed clearing is not located within a conservation reserve (GIS Database). The nearest known conservation reserve is Mungaroona Range Nature Reserve located approximately 94 kilometres south-west of the application area (GIS Database). At this distance the proposed clearing is not likely to impact on the environmental values of this conservation area.

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

Methodology GIS Database:
- DEC Tenure

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

Comments

Proposal is not likely to be at variance to this Principle

According to available GIS Databases the application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The nearest PDWSA is the Turner River Water Reserve, located approximately 10 kilometres west of the application area (GIS Database). Given the small size of the application area it is considered unlikely that the proposed clearing will impact the quality of groundwater.

According to available GIS Databases, there are no wetlands watercourses within the application area (GIS Database). It is considered unlikely that the proposed clearing will affect the quality of surface water.

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

Methodology

GIS Database:
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)

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

Comments

Proposal is not likely to be at variance to this Principle

The application area experiences a semi-desert-tropical climate with an average annual rainfall of 310.9 millimetres and an average annual evaporation rate of 3,400 - 3,600 millimetres (BoM, 2011; CALM, 2002; GIS Database). Therefore, there is likely to be little surface flow during normal seasonal rains.

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

BoM (2011)
CALM (2002)
GIS Database:
- Evaportation Isopleths

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

Comments

There is one Native Title Claim (WC99/3) over the area under application (GID Database). This claim has been lodged with the National Native Title Tribunal on behalf of the claimant group. 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*.

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 7 March 2011 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received in relation to the proposed clearing.

Methodology

GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims – Registered with the NNTT

4. References

BHP Billiton (2011) Bore Creek Levee, Application to Clear Native Vegetation (Purpose Permit) Under the Environmental Protection Act 1986. Western Australia.

BoM (2011) BoM Website - Climate Averages by Number, Averages for Port Hedland Airport. www.bom.gov.au/climate/averages/tables/cw_002038.shtml (Accessed 30 March 2011).

Department of Conservation and Land Management (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions.
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 (2010a) Bore Creek Levee Bank Upgrade Flora and Vegetation Assessment. Prepared for BHP Billiton Iron Ore Pty Ltd. Western Australia.
ENV (2010b) Bore Creek Levee bank upgrade Fauna Assessment. Prepared for BHP Billiton Iron Ore Pty Ltd. Western Australia.
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.
Van Vreeswyk, A.M.E., Payne, A.L., Hennig, P., and Leighton, K.A. (2004) An Inventory and Condition Survey of the Pilbara Region, Western Australia, Department of Agriculture, 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.