



1. Application details

1.1. Permit application details

Permit application No.: 2496/1
 Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: BHP Billiton Iron Ore Pty Ltd

1.3. Property details

Property: LOT 203 ON PLAN 220594 (BOODARIE 6722)
 LOT 203 ON PLAN 220594 (BOODARIE 6722)
 LOT 370 ON PLAN 35619 (WEDGEFIELD 6721)
 LOT 311 ON PLAN 194620 (BOODARIE 6722)
 LOT 372 ON PLAN 35620 (PORT HEDLAND, TOWN OF)
 LOT 125 ON PLAN 219861 (BOODARIE 6722)
 LOT 376 ON PLAN 54518 (BOODARIE 6722)
 LOT 3000 ON PLAN 51079 (FINUCANE 6722)
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 LOT 3000 ON PLAN 51079 (FINUCANE 6722)
 Local Government Area: Town Of Port Hedland
 Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
10		Mechanical Removal	Miscellaneous
10		Mechanical Removal	Miscellaneous

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
43 - Shrublands; tallerack mallee-heath	The western application area consists of vegetation in very good (Keighery, 1994) condition, with a low level of weed invasion, predominately being	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	Vegetation condition was assessed through site visits (ENV, 2007 and Biota, 2008)
117 - Hummock grasslands, grass steppe; soft spinifex	Cenchrus ciliaris and Aerva javanica (Biota, 2008).		
127 - Bare areas; mud flats	There are a number of landforms within the application area. They include, Mangroves, samphires, dunes and sandplains. The vegetation within these landforms is classified a good to excellent (ENV, 2007)		
589 - Mosaic: Short bunch grassland - savanna / grass plain (Pilbara) / Hummock grasslands, grass steppe; soft spinifex			
647 - Hummock grasslands, dwarf-shrub steppe; Acacia translucens over soft spinifex			

The vegetation within the eastern portion is in good to very good (Keighery, 1994) condition , with a low level of weed invasion, predominately being Cenchrus ciliaris and Aerva javanica (Biota, 2008). There is significant disturbance noted within the area due to high level industrial development, vehicle tracks and metal

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 purpose of clearing is for geotechnical investigations throughout a 1894 hectare area. Native vegetation disturbances will be attributed to vehicles and equipment gaining access to sites, with further disturbance created through approximately 40 boreholes (40 x 60mm) and 105 excavation test pits (BHPa, 2008).

The area to be cleared consists of Beard vegetation association 43, 117, 127, 589 and 647 all of which have approximately between 82% - 100% of the Pre-European extent remaining (Shepherd et al., 2006). The application area consists mainly of Littoral and Uaroo vegetation systems (van Vreeswyk et al. 2004) which are well represented throughout the Pilbara region.

There is one record of a priority flora species within a 10km radius of the application area. *Gomphrena pusilla*, a priority 2 (P2) species, recorded approximately 9km to the south west of the application area (SAC biodatasets 240608). Three other priority species have been recorded within a wider 30km radius from the area applied to clear. These include; *Ptilotus appendiculatus* (Priority 1), *Goodenia pascua* (Priority 3), and *Gymnanthera cunninghamii* (Priority 3) (SAC biodatasets 240608).

Two priority flora species were recorded within the application area in October 2007 (ENV, 2007). These were *Abutilon trudgenii* (P3) and *Gymnanthera cunninghamii* (P3). Both species appear to be widespread in the Pilbara region (FloraBase). A further survey in March 2008 (Biota, 2008) did not find any priority flora within the application area; this is likely to be due to seasonal variation and limited survey area.

There are a number of weeds common to the Pilbara region which could be introduced to site and surrounding areas as a result of this proposal. Strategies to reduce the risk of introduction and spread of weeds should be undertaken. Stockpiling of topsoil will also require management for weeds until it is required for rehabilitation activities. The proponent intends to implement strategies to mitigate potential impacts on biodiversity, including clearing the minimum area of land required and reapplication of topsoil to areas being rehabilitated (BHPa, 2008).

The application area is unlikely to represent an area of higher biodiversity value when compared to representative vegetation in a local and regional context.

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

Methodology

BHPa (2008)
Biota (2008)
ENV (2007)
FloraBase
van Vreeswyk et al. (2004)
Shepherd et al., (2001)
GIS Database:
- SAC biodatasets (240608)
- Interim Biogeographic Regionalisation of Australia (subregions) - EA 18/10/00.
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00.
- Pre-European Vegetation - DA 01/01.
- Port Hedland Townsite 20cm Orthomosaic - DLI 02.

(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

Several species of conservation significance have been previously recorded within a 50 kilometre radius of the application area (SAC biodatasets 240608). The fauna recorded include:

- * *Aspidites ramsayi* (Woma - southwest population) - Schedule 4 / Priority 1;
- * *Mormopterus loriae cobourgiana* (Little North-western Mastiff Bat or Mangrove Freetail Bat) - Priority 1;
- * *Ardeotis australis* (Australian Bustard) - Priority 4; and
- * *Neochima ruficauda subclarescens* (Star Finch (western) - Priority 4;

The Mangrove Freetail Bat was recorded within 120m of the application area (SAC biodatasets 240608) and may use habitat within the proposed area for prey foraging, however impacts through habitat loss are considered low due to the small size of the clearing within the vast areas of vegetation remaining in the local area. Roosting habitat is located within the proposal areas within the mangroves and therefore roosting habitat may be impacted.

The Australian Bustard has been recorded within approximately 4km of the application area (SAC biodatasets

240608) . Potential impacts upon the species include habitat loss, however, the species is relatively widespread, and the small area of the proposed clearing is unlikely to have any significant impacts on the habitat for this species.

The Star Finch (Western) is a nomadic species inhabiting grasslands and eucalypt woodlands near water. The recorded sighting was noted to be very uncommon and due to its preferred habitat including eucalypt woodlands near water, it is unlikely that the clearing will impact on significant habitat for this species.

Records of Woma are also present within the local area (SAC biodatasets 240608), however, only the southwest population of this species is listed as specially protected. The northern form that could potentially occur within the proposed areas to be cleared is not currently listed as a threatened or priority species.

The fauna habitats within the proposed area to be cleared are well represented elsewhere within the local and regional area, and no significant loss of habitat for fauna indigenous to WA is expected. The area to be cleared does not represent a fauna corridor and therefore the clearing will not remove an ecological linkage that is necessary for the maintenance of fauna.

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

Methodology GIS Layers:
- SAC biodatasets (Fauna) 240608

(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**
Mangroves along the Pilbara coastline, which have a high conservation value as per the EPA (2001), fall within the application area. The proponent maintains that direct disturbance to Mangroves will be limited to pruning only (BHPa, 2008).

The closest record of a rare flora species (*Terminalia supranitifolia*) is located approximately 200km to the east of the application area on the Burrup Peninsula (SAC biodatasets 240608).

There is one record of a priority flora species within a 10km radius of the application area. *Gomphrena pusilla*, a priority 2 (P2) species, recorded approximately 9km to the south west of the application area (SAC biodatasets 240608). Three other priority species have been recorded within a wider 30km radius from the area applied to clear. These include; *Ptilotus appendiculatus* (Priority 1), *Goodenia pascua* (Priority 3), and *Gymnanthera cunninghamii* (Priority 3) (SAC biodatasets 240608).

Two priority flora species were recorded within the application area in October 2007 (ENV, 2007). These were *Abutilon trudgenii* (P3) and *Gymnanthera cunninghamii* (P3). Both species appear to be widespread in the Pilbara region (FloraBase). A further survey in March 2008 (Biota, 2008) did not find any priority flora within the application area; this is likely to be due to seasonal variation and limited survey area.

Due to the huge distance between any recorded rare flora and the location of the vegetation to be cleared, and the vastly different land types and vegetation associations present, the proposed clearing appears unlikely to have an impact on any known rare flora and therefore, not likely to be at variance to this principle.

Methodology BHPa (2008)
Biota (2008)
ENV (2007)
EPA (2001)
FloraBase
GIS Database:
SAC biodatasets (240608)

(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**
There are no records of threatened ecological communities within a 50km radius (SAC biodatasets 240608). Therefore, the proposal is unlikely to be at variance to this principle.

Methodology GIS Layer:
- SAC biodatasets (240608)

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

Comments	Proposal is not likely to be at variance to this Principle			
	Pre-European (ha)	Current extent (ha)	remaining (%)	Pre-European % in reserve / DEC-managed land
IBRA Bioregions*				
Pilbara	17,804,193	17,794,650	99.9	N/A
Shire**				
Town of Port Hedland	1,845,215	1,843,203	99.9	N/A
Beard Vegetation Complex*				
43	218,170	179,526	82.3	N/A
117	919,161	886,203	96.4	N/A
127	742,643	719,980	96.9	N/A
589	809,753	809,753	100	N/A
647	196,371	196,371	100	N/A

** (Shepherd et al. 2006)

The area to be cleared consists of Beard vegetation association 43, 117, 127, 589 and 647 all of which have approximately between 82% - 100% of the Pre-European extent remaining (Shepherd et al., 2006). The application area consists mainly of Littoral and Uaroo vegetation systems (van Vreeswyk et al. 2004) which are well represented throughout the Pilbara region.

Given the above, the 10ha proposed to be cleared is not considered to be a significant remnant of native vegetation within an extensively cleared area, and therefore not at variance to this principle.

Methodology Shepherd et al., (2006)
van Vreeswyk et al. (2004)
GIS Layer:
- Interim Biogeographic Regionalisation of Australia (subregions) - EA 18/10/00.
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00.
- Pre-European Vegetation - DA 01/01.
- Port Hedland Townsite 20cm Orthomosaic - DLI 02.

(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**
The application borders the Pilbara Coastline along Port Hedland. Clearing within this area may cause degradation of riparian vegetation mainly, mangroves. The shoreline area containing mangroves has been highlighted as a Wetland of subregional significance (Kendrick and Stanley 2001). The proponent maintains that direct disturbance to Mangroves will be limited to pruning only (BHPa, 2008).

Furthermore, there are two areas within the application area close to the Pilbara Coastline that are subject to inundation. Given the large application area (1894 ha) and the small area proposed to be cleared (up to 10 ha) it is unlikely that the application will be at variance to this principle.

Methodology BHPa (2008)
Kendrick and Stanley (2001)
GIS Layer:
- Hydrography, linear - DOW 13/7/06

(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**
There is a possibility that land degradation may occur as apart of the earthworks during geotechnical works. To mitigate impacts of land degradation the proponent will employ management strategies to mitigate potential impacts of erosion by using existing roads and tracks where possible, apply removed topsoil to areas being rehabilitated and ensure disturbed soil surfaces are level to avoid pooling of water (BHPa, 2008).

Additionally, there is a low to moderate and moderate to high level of acid sulfate soils (ASS) risk within the application area. Clearing is unlikely to disturb soil layers associated with ASS.

Given the large application area (1894 ha) and the small area proposed to be cleared (up to 10 ha) it is unlikely that the application will be at variance to this principle.

Methodology BHPa (2008)
GIS Layer:
- Acid Sulfate Soil Risk Map, Swan coastal Plain - DEC 07/08/06

(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**
There are two conservation areas less than 1km from the application area. They are Coastal Islands - Dixon Is to Cape Keraudren - 2.7km east; and South West Creek area - 750m west.

Given the purpose of the application is for geotechnical investigations, which will involve limited clearing over a large area and pruning of native vegetation within the application area, it is unlikely that the proposal is at variance to this principle.

Methodology GIS Layers:
- Register of National Estate - Environment Australia, Australian and world heritage division 12 Mar 02
- CALM Managed Lands and Waters - CALM 01/06/05

(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 subject property lies within The Pilbara Groundwater Area as proclaimed area under the Rights in Water and Irrigation Act 1914. Any groundwater extraction and/or taking or diversion of surface water for the purposes other than domestic and/or stock watering is subject to licence by the Department of Water.

Clearing of 10 hectares of vegetation is unlikely to have a significant impact on groundwater in the proposed area given the average annual rainfall of the site is 400mm, with most rainfall occurring over the summer months (BoM 2007), and an evaporation rate of 400mm per annum. Furthermore, the existing vegetation is shallow rooted grass and shrub species and thus the proposed clearing is unlikely to have a significantly impact the level of the groundwater table.

Methodology BoM (2007)
GIS Layer:
- RIWI Act, Groundwater Areas - DoW 13/07/06
- Country Area Water Supply Act (Part IIA) Clearing Control Catchments 29/06/2006

(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 limited amount of clearing proposed (10 hectares) in comparison with the extent of the Port Hedland coastal catchment area (which is approximately 744,301 hectares) is unlikely to result in an increase in peak flood height or flood peak duration.

Clearing of 10ha is unlikely to have a significant impact on quality or quantity of groundwater given the mean annual rainfall for the site is 400 millimetres with most rainfall occurring around the summer months, and an evaporation rate of 400 millimetres per annum (BoM 2007).

Further to this, the existing vegetation consists of shallow rooted grasses and shrubs with minimal tree root systems, thus the proposed clearing of vegetation is unlikely to significantly affect the level of the ground water table.

Given the above, it is unlikely that the proposed clearing will cause or exacerbate the incidence or intensity of flooding.

Methodology BoM (2007)
GIS Layer:
- Mean Annual Rainfall Isohytes (1975 - 2003) - DEC 02/08/05
- Evapotranspiration Isopleths - WRC 29/09/98

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

Comments
The area applied to be cleared does not occur within a Public Drinking Water Source Area under the Country Areas Water Supply Act 1947. The subject property does however lie within The Pilbara Groundwater Area as

proclaimed area under the Rights in Water and Irrigation Act 1914. Any groundwater extraction and/or taking or diversion of surface water for the purposes other than domestic and/or stock watering is subject to licence by the Department of Water. The proponent does not require the use of groundwater.

There is one Native Title Claim (Kariyarra) over the application area. The proponent has committed to liaising with the Pilbara Native Title Service and ensure all contractors undergo an induction to their responsibility under the Act (BHPa, 2008).

The assessment of the application did not raise any environmental issues. Aboriginal heritage sites are protected under the Aboriginal Heritage Act 1972 and the proponent must comply with its obligations under this Act. There is one Native Title claim over the area under application. DEC considers that Traditional Owners have a direct interest in the subject matter of the application and accordingly has invited the native title claimants under section 51E(4) to comment on the application and by section 51E(5) to take those comments into account when deciding whether to grant or refuse BHP Billiton's purpose permit.

Methodology BHPa (2008)

GIS Layers:

- Native Title Claims - LA 2/5/07
- RIWI Act, Groundwater Areas - DoW 13/07/06
- Country Area Water Supply Act (Part IIA) Clearing Control Catchments 29/06/2006
- Aboriginal Sites of Significance 26 April 2007

4. Assessor's comments

Comment

The proposed clearing has been assessed against the ten principles in Schedule 5 of the Environmental Protection Act 1986 and is not likely to be at variance with any of these principles.

5. References

- BHPa 2008. Port Hedland geotechnical investigations: application to clear native vegetation. BHP Billiton. April 2008
- Biota 2008. Biota Environmental Sciences. A flora and fauna Assessment of RGP5 Spoil Areas A and H, Port Hedland Harbour. Prepared for Sinclair Knight Merz. March 2008.
- BoM 2008. Bureau of Meteorology - Rainfall of Karratha 2007. Sited on 1/1/2008 at <http://www.bom.gov.au/climate/dwo/IDCJDW6064.latest.shtml>
- ENV. 2007. ENV Australia. project Quantum Flora and vegetation Assessment. Prepared for Sinclair Knight Merz Pty Limited. March 2008
- EPA (2001) Guidance for the Assessment of Environmental Factors - Guidance Statement for protection of tropical arid zone mangroves along the Pilbara coastline. Report by the EPA under the Environmental Protection Act 1986. No 1 WA.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Kendrick, P., and Stanley, F. 2001. Pilbara 4 (PIL4 - Roebourne synopsis). Department of Conservation and Land Management (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
- Van Vreeswyk, A.M.E., Payne, A.L., Leighton, K.A., and Henning, P. (2004) An inventory and condition survey of the Pilbara region, Western Australia, Technical Bulletin No.92

6. Glossary

Term	Meaning
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now BCS)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
DoE	Department of Environment
DoIR	Department of Industry and Resources
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DEC)

