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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4619/1
Permit type: Purpose Permit

1.2. Proponent details

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

1.3. Property details

Property: *Iron Ore (Mount Newman) Agreement Act 1964*, Mineral Lease 244SA (AML 70/244)
Local Government Area: Shire of East Pilbara
Colloquial name: Jinidi Rail Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
50		Mechanical Removal	Geotechnical investigations

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 15 December 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 for the whole of Western Australia. Two Beard vegetation associations have been mapped within the application area (GIS Database; Shepherd, 2009):

18: Low woodland; mulga (*Acacia aneura*);and
82: Hummock grassland, low tree steppe; snappy gum over *Triodia wiseana*.

A flora and vegetation survey of the application area and its surrounds was conducted over three trips, November to December 2009, February 2010 and June 2010, by Onshore Environmental (2011). This survey identified the following 18 vegetation commmunities within the application area (Onshore Environmental, 2011):

***Eucalyptus* woodland to forest**
1a - Woodland to Forest of *Eucalyptus camaldulensis* var. *obtusa, Melaleuca argentea* and *Eucalyptus victrix* over Low Open Woodland of *Acacia citrinoviridis* and *Acacia coriacea* subsp. *pendens* over Shrubland of *Acacia bivenosa, Gossypium sturtianum* and *Gossypium robinsonii* in brown silty sand and clay soils along Weeli Wolli Creek.

***Eucalyptus* low open forest**
2a - Low Open Forest of *Eucalyptus xerothermica, Corymbia hamersleyana* and *Eucalyptus leucophloia* subsp. *leucophloia* over Tussock Grassland of *Themeda triandra* and *Cymbopogon ambiguus* with Shrubland of *Petalostylis labicheoides, Acacia monticola* and *Santalum lanceolatum* in brown clay loam soils on large drainage lines.

***Acacia* low open forest**
3a - Low Open Forest of *Acacia aneura* var. *tenuis* over Tussock Grassland of *Themeda triandra*, *Chrysopogon fallax* and *Aristida inaequiglumis* in red brown clay loam soils on flood plains.

***Eucalyptus*/*Corymbia* low woodland**
4b - Low Woodland of *Eucalyptus xerothermica* and *Corymbia hamersleyana* over Shrubland of *Acacia pyrifolia* var. *pyrifolia, Petalostylis labicheoides* and *Gossypium robinsonii* over Open Hummock Grassland of *Triodia pungens* in red brown loam soils along medium drainage lines.

Low shrubland
6a - Low Shrubland of *Acacia spondylophylla* over Open Hummock Grassland of *Triodia* sp. Shovelanna Hill (S.van Leeuwen 3835) with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamersleyana* in red brown loam soils on middle and lower hill slopes.

***Acacia* open scrub**

7a - Open to Closed Scrub of *Acacia tumida* var.*pilbarensis*, *Petalostylis labicheoides* and *Acacia monticola* over Hummock Grassland of *Triodia pungens* (or Tussock Grassland of *Themeda triandra*) with Low Woodland of *Corymbia hamersleyana* and *Eucalyptus leucophloia* subsp. *leucophloia* in red brown loam soils along minor drainage lines.

7b - Open Scrub of *Acacia bivenosa*, *Petalostylis labicheoides* and *Rulingia luteiflora* over Hummock Grassland of *Triodia angusta* and *Triodia wiseana* with Scattered Low Trees of *Eucalyptus xerothermica* in red loamy clay soils on minor drainage lines over low calcrete rises and plains.

***Themeda* tussock grassland**

9c - Tussock Grassland of *Themeda triandra*, *Eriachne mucronata* and *Eriachne tenuiculmis* with Low Woodland of *Corymbia ferriticola, Corymbia hamersleyana* and *Eucalyptus leucophloia* subsp. *leucophloia* over High Shrubland of *Petalostylis labicheoides*, *Grevillea wickhamii* subsp. *hispidula* and *Acacia tumida* var. *pilbarensis* in red brown loam soils in dissected medium drainage lines with steep or vertical cliff faces.

Triodia hummock grassland

10c - Hummock Grassland of *Triodia pungens* with Very Open Mallee of *Eucalyptus gamophylla* over Open Shrubland of *Acacia bivenosa*, *Acacia pachyacra* and *Acacia pruinocarpa* in red brown loam soils on lower valley slopes.

10d - Hummock Grassland of *Triodia* sp. Shovelanna Hill (S.van Leeuwen 3835) with Low Open Woodland of *Corymbia deserticola* subsp. *deserticola* and *Eucalyptus leucophloia* subsp. *leucophloia* in red brown loam soils on plains, low rises, foot slopes and spur hill slopes.

10e - Hummock Grassland of *Triodia wiseana*, *Triodia brizoides* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* in red brown clay loam on steep hill slopes and U-shaped gullies.

10g - Hummock Grassland of *Triodia wiseana* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamersleyana* over Low Shrubland of *Acacia hilliana*, *Acacia adoxa* var. *adoxa* and *Gompholobium* sp. Pilbara (N.F. Norris 908) in red brown loam soils on hill crests and hill slopes.

10j - Hummock Grassland of *Triodia wiseana* and *Triodia brizoides* with Open Shrubland of *Acacia bivenosa* and *Acacia inaequilatera* and Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia* and *Eucalyptus gamophylla* (mallee) in skeletal red brown loam soils on rocky hill slopes.

10k - Hummock Grassland of *Triodia wiseana* and *Triodia* sp.Shovelanna Hill (S. van Leeuwen 3835) with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* over Open Shrubland of *Acacia bivenosa*, *Acacia aneura* var. *aneura* and *Acacia ancistrocarpa* in red brown silty loams on stony plains and low hills.

10l - Hummock Grassland of *Triodia wiseana*, *Triodia* sp. Shovelanna Hill and *Triodia angusta* with Shrubland of *Acacia bivenosa* and *Acacia ancistrocarpa* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia*, *Eucalyptus xerothermica and Eucalyptus gamophylla* (mallee) in red brown loam soils on flood plains.

10m - Hummock Grassland of *Triodia wiseana* with High Open Shrubland of *Acacia bivenosa* and *Acacia pyrifolia* var. *pyrifolia* and Scattered Low Mallee of *Eucalyptus socialis* subsp. *eucentrica* in light brown clay loam soils on calcrete plains and low rises.

***Triodia* open hummock grassland**

11a - Open Hummock Grassland of *Triodia pungens* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* in skeletal orange brown loam soils on steep south-facing hill slopes.

11b - Open Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamersleyana* over Low Open Shrubland of *Acacia hilliana*, *Acacia adoxa* var. *adoxa* and *Indigofera monophylla* in skeletal orange brown loam soils on hill crests and upper hill slopes.

Clearing Description

BHP Billiton Iron Ore Pty Ltd is proposing to clear up to 50 hectares of native vegetation within a broader boundary of approximately 2,901 hectares for the purpose of geotechnical investigations.

Clearing will be conducted by mechanical means.

Vegetation Condition

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

To

Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).

Comment

The application area is located within the Pilbara region of Western Australia and is situated approximately 69 kilometres north west of Newman.

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 proposed clearing is located approximately 69 kilometres north west of Newman in the Hamersley subregion of the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). At a broad scale, vegetation can be described as Mulga low woodlands over bunch grasses on fine textured soils in valley floors and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils of the ranges (CALM, 2002). Rare features of the subregion include gorges of the Hamersley Ranges (particularly those within Karijini National Park), Palm Spring, Duck Creek and Themeda grasslands (CALM, 2002). Permanent spring systems such as Weeli Wolli are also listed for their importance as refugia (CALM, 2002).

A flora and vegetation survey of the application area and its surrounds was conducted over three trips, November to December 2009, February 2010 and June 2010, by Onshore Environmental (2011). A total of 479 flora taxa from 53 families and 166 genera were recorded during this survey (Onshore Environmental, 2011). This survey was split into two sections, a southern and northern, with the application area lying within the northern section. A total of 206 flora taxa were recorded within the northern section (Onshore Environmental, 2011). This is comparable with the southern section which had 219 flora species recorded (Onshore Environmental, 2011).

A flora and vegetation survey of the application area conducted by Onshore Environmental (2011) identified the following five priority flora species within the application area:

- *Stylidium weeliwolli* (Priority 2) - known from 14 localities between the Chichester Range and Mount Augustus. This species has been found growing in association with vegetation community 1a;

- *Acacia subtiliformis* (Priority 3) – known from 11 localities between Newman and Karijini National Park, including one population within Karijini National Park. Recorded at 197 spot locations within the Onshore Environmental (2011) survey area, with a number of these being within the application area;

- *Goodenia* sp. East Pilbara (Priority 3) – known from 16 locations between Paraburdoo and Mount Cooke. 202 locations of this species were recorded within the Onshore Environmental (2011) survey area, with a number of these being within the application area;

- *Rostellularia adscendens* var. *latifolia* (Priority 3) – recorded from 46 locations within the Onshore Environmental (2011) survey area with numerous locations within Weeli Wolli Creek and adjacent calcrete plains. According to FloraBase (West Australian Herbarium, 2011) this species is known from numerous locations outside of the application area;

- *Goodenia nuda* (Priority 4) – known from approximately 23 locations between Brassey Range and Onslow and was recorded at one location in the eastern end of the application area. The proposed clearing is not likely to impact on the conservation of this species.

All of these species are known from numerous populations outside of the application area (Onshore Environmental, 2011). Given the low impact, non contiguous nature of the proposed clearing, it is considered unlikely that the proposed clearing will impact on the conservation of any of these species.

A small section of the Weeli Wolli Springs Priority 1 Ecological Community (PEC) lies within the application area (GIS Database). This community is related to the riparian woodland and forests associated with Weeli Wolli Creek springs (DEC, 2009). There are no permanent water pools within the application area, and given the low impact, non contiguous nature of the proposed clearing, it is considered unlikely that the proposed clearing will significantly impact on the conservation values of this community.

A fauna survey of the application area and its surrounds conducted by Biologic (2011) identified the potential for 23 conservation significant fauna species to occur within the application area. Of this, four conservation significant species have been recorded within the application area, Ghost Bat (*Macroderma gigas*, Priority 4), Western Pebble-mound Mouse (*Pseudomys chapmani*, Priority 4), Rainbow Bee-eater (*Merops ornatus*, Migratory) and Pilbara Barking Gecko (*Nephrurus seorsus*, locally significant).

A total of eight fauna surveys have been conducted over Area C and surrounds which have recorded 29

mammal, 113 bird, 81 reptile and four amphibian species (Biologic, 2011). Given the low impact, non contiguous nature of the proposed clearing, it is considered unlikely that faunal diversity will be significantly impacted.

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

Methodology

Biologic (2011)
CALM (2002)
DEC (2009)
Onshore Environemental (2011)
West Australian Herbarium (2011)
GIS Database:
- IBRA WA (regions – subregions)
- 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 fauna survey of the application area and its surrounds was conducted by Biologic (2011) in October 2009 and March 2010. This survey identified the following eight fauna habitat types within the application area and surrounds (Biologic, 2011):

- Mulga Association;
- Major Drainage line;
- Drainage Area;
- Crest/Slope;
- Gorge/Gully;
- Valley and Calcrete Plain;
- Cliffs; and
- Sandplain.

The habitats of greatest significance within the application area were determined to be 'Major Drainage Line' habitats identified along the eastern extent of the application area (BHP Billiton Iron Ore, 2011). Part of the 'Major Drainage Line' habitat is associated with the Weeli Wolli Springs Priority Ecological Community (PEC). The majority of this community has been excluded from the application area and it is therefore considered that the proposed low impact, non contiguous clearing is unlikely to significantly impact this community.

A fauna survey of the application area and its surrounds conducted by Biologic (2011) identified the potential for 23 conservation significant fauna species to occur within the application area. Of this, four conservation significant species have been recorded within the application area:

- Ghost Bat (*Macroderma gigas*) Priority 4: a total of 20 roost caves were recorded within the Biologic (2011) survey area and a further 19 caves were recorded as containing potential habitat for the Ghost Bat. One roost cave was identified on the northern border of the application area. This cave has been classed as 'good quality' by Biologic (2011). BHP Billiton Iron Ore (2011) have committed to avoiding habitat for conservation significant fauna. Given the proposed clearing is for geotechnical investigations for a rail option, the clearing is to take place on flat areas. It is considered unlikely that the proposed clearing will impact on Ghost Bat habitat which is located within the Gorge/Gully community on ridges;

- Western Pebble-mound Mouse (*Pseudomys chapmani*) Priority 4: this species occurs on gentle slopes of rocky ranges where the ground is covered by stony mulch and vegetated by hard Spinifex, often with sparse overstory of eucalypts and scattered shrubs (Van Dyck & Strahan, 2008). A decline in this species occurred prior to 1970, likely to be caused by the introduction of foxes and exotic herbivores (Van Dyck & Strahan, 2008). This species is considered to be secure in its remaining range where foxes are rare and preferred habitat is little utilised by exotic herbivores (Van Dyck & Strahan, 2008);

- Rainbow Bee-eater (*Merops ornatus*) Migratory: this species is a common inhabitant of the application area and has been recorded in all fauna surveys in the local area. This species is predominantly associated with 'Major Drainage Line' habitat. This species is known to occur across the better watered parts of the state and also known to breed in eastern Australia. It is unlikely that the proposed clearing will impact on the conservation of this species; and

- Pilbara Barking Gecko (*Nephrurus seorsus*) Locally Significant: three locations of this species were recorded across a broad range of habitat types within the Biologic (2011) survey area. According to BHP Billiton Iron Ore (2011) one of these locations is on the northern border of the application area, however given the low impact, non contiguous nature of the proposed clearing; it is not likely to impact on the conservation of this species.

One cave has been located within the application area which has been classed as 'good quality' by Biologic (2011). This cave was located on the northern border of the application area and given the clearing is proposed to occur within the flat areas and not within gorge or gully habitat, and given the low impact, non contiguous nature of the proposed clearing it is considered unlikely that this cave will be impacted by the proposed clearing

activities.

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

Methodology BHP Billiton Iron Ore (2011)
Biologic (2011)
Van Dyck & Strahan (2008)

(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 application area (GIS Database). A flora and vegetation survey of the application area conducted by Onshore Environmental (2011) did not identify any DRF.

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

Methodology Onshore Environmental (2011)
GIS Database:
- Threatened and Priority Flora

(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 known Threatened Ecological Communities (TEC's) within the application area (GIS Database). The nearest known TEC is located approximately 63 kilometres south east 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 is located 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 within the Pilbara bioregion.

The vegetation in the application area has been broadly mapped as Beard vegetation associations:

18: Low woodland; mulga (*Acacia aneura*);and
82: Hummock grassland, low tree steppe; snappy gum over *Triodia wiseana*.

According to Shepherd (2009) approximately 100% of Beard vegetation associations 18 and 82 remain 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					
18	19,892,305	19,890,275	~99.99	Least Concern	~2.13
82	2,565,901	2,565,901	~100	Least Concern	~10.4
Beard vegetation associations - Bioregion					
18	676,557	676,557	~100	Least Concern	~16.8
82	2,563,583	2,563,583	~100	Least Concern	~10.25

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

The vegetation within the application area is not considered to be a remnant of native vegetation in an area that has been extensively cleared.

It is noted that native vegetation is used by Aboriginal people for bush tucker and medicine. Given the low impact, non contiguous nature of the proposed clearing of 50 hectares within a boundary of approximately 2,900 hectares, it is considered unlikely the proposed clearing will significantly impact the amount of bush tucker in 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 – 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 at variance to this Principle**
There are no permanent wetlands or watercourses located within the application area, however there are numerous minor non-perennial watercourses (GIS Database). A flora and vegetation survey conducted over the application area by Onshore Environmental (2011) identified six vegetation types associated with watercourses.

Of particular significance is vegetation community 1a which is associated with the Weeli Wolli Springs Priority Ecological Community (PEC) (Onshore Environmental, 2011). The majority of this community has been excluded from the application area and given the low impact, non contiguous nature of the proposed clearing it is considered unlikely to significantly impact on the values of this community.

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

Methodology Onshore Environmental (2011)
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**
The application area intersects the following seven land systems (GIS Database):

The Boolgeeda land system is characterised by stony lower slopes and plains below hill systems supporting hard and soft Spinifex grasslands and mulga shrubands (Van Vreeswyk et al., 2004). This vegetation is generally not prone to degradation and the system is not susceptible to erosion (Van Vreeswyk et al., 2004).

The Calcrete land system is characterised by low calcrete platforms and plains supporting shrubby hard

spinifex grasslands (Van Vreeswyk et al., 2004). This land system has been assessed as having a low erosion risk (Van Vreeswyk et al., 2004).

The Newman land system is characterised by rugged jaspilite plateaux, ridges and mountains supporting hard Spinifex grasslands (Van Vreeswyk et al., 2004). This land system is not susceptible to erosion (Van Vreeswyk et al., 2004).

The Oakover land system is characterised by breakaways, mesas, plateaux and stony plains of calcrete supporting hard spinifex grasslands (Van Vreeswyk et al., 2004). This land system is not generally prone to degradation or susceptible to soil erosion (Van Vreeswyk et al., 2004).

The Platform land system is characterised by dissected slopes and raised plains supporting hard Spinifex grasslands (Van Vreeswyk et al, 2004). This land system is not susceptible to erosion (Van Vreeswyk et al., 2004).

The River land system is characterised by active flood plains and major rivers supporting grassy eucalypt woodlands, tussock grasslands and soft spinifex grasslands (Van Vreeswyk et al., 2004). This land system is largely stabilised by buffel grass and spinifex and accelerated erosion is uncommon, however, susceptibility to erosion is high or very high if vegetation is removed (Van Vreeswyk et al., 2004).

The Rocklea land system is characterised by basalt hills, plateaux, lower slopes and minor stony plains supporting hard Spinifex (and occasionally soft Spinifex) grasslands (Van Vreeswyk, 2004). This land system has very low erosion susceptibility (Van Vreeswyk et al., 2004).

Land degradation may occur within the River land system should the vegetation be removed. Potential erosion as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

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

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 onshore conservation reserve is the Karijini National Park, located approximately 44 kilometres west of the application area (GIS Database). At this distance it is unlikely that the proposed clearing will impact on the environmental values of any conservation areas (GIS Database).

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). The nearest PDWSA is the Newman Water Reserve, approximately 43 kilometres south east of the application area (GIS Database). At this distance it is unlikely that the proposed clearing will impact on the water quality of the Newman Water Reserve.

The groundwater salinity within the application area is between 500 – 1,000 milligrams per litre of total Dissolved Solids (TDS) (GIS Database). Given the low impact, non contiguous nature, the proposed clearing is not likely to alter the salinity levels within the application area.

There are no permanent wetlands or watercourses within the application area (GIS Database). It is therefore considered unlikely that the proposed clearing will impact on the quality of any surface water.

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

Methodology GIS Database:
- Goundwater Salinity, Statewide
- Hydrography, linear
- Public Drinking Water Source Area (PDWSA)

(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 approximately 319.3 millimetres recorded at Newman Aero weather station approximately 69 kilometres south east of the application area (BoM, 2011; CALM, 2002). The majority of rainfall in this area usually falls in summer cyclonic and thunderstorm events (CALM, 2002). Large runoff as well as localised and regional flooding can occur following intense rainfall events and, given its non contiguous nature, it is considered unlikely that the proposed clearing will cause or exacerbate the 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)

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

Comments

There are four Native Title Claims (WC10/15, WC10/17, WC 96/61 and WC98/62) over the area under application (GIS Database). These claims have been registered with the 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 is one registered Aboriginal Site 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 26 September 2011 by the Department of Mines and Petroleum inviting submissions from the public. One submission was received regarding Aboriginal heritage surveys and cumulative impacts of clearing. A response was sent on 10 October 2011 addressing the Aboriginal heritage issue. Cumulative impacts of the proposed clearing are addressed under Principle (e).

Methodology

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

4. References

BHP Billiton Iron Ore (2011) Rail Operations. Jinidi to Mining Area C (MAC) Rail Option Geotechnical Investigation. Application to Clear Native Vegetation (Purpose Permit) Under the Environmental Protection Act 1986. Unpublished report dated September 2011. BHP Billiton iron Ore Pty Ltd.

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DEC (2009) Biodiversity values of Weeli Wolli spring: A Priority Ecological Community. Information Sheet 3 / 2009, Science Division.

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Van Dyck, S. and Strahan, R. (2008) The Mammals of Australia Third Edition. Published by Reed New Holland, Sydney.

Van Vreeswyk AME, Payne AL, Leighton KA & Hennig P, (2004). Technical Bulletin No. 92: An inventory and condition survey of the Pilbara region, Western Australia. Department of Agriculture, Western Australia.

Western Australian Herbarium (2011) FloraBase - The Western Australian Flora. Department of Environment and Conservation. http://florabase.dec.wa.gov.au/ (Accessed 24/10/2011).

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.