



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 6671/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: BHP Billiton Iron Ore Pty Ltd

### 1.3. Property details

Property: Iron Ore (McCamey's Monster) Agreement Authorisation Act 1972, Mining Lease 266SA (AM 70/266)  
Local Government Area: Shire of East Pilbara  
Colloquial name: Mindy Project

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
100		Mechanical Removal	Hydrogeological and geotechnical investigations

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 17 September 2015

## 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. Three Beard vegetation associations have been mapped within the application area:

**Beard vegetation association 29:** Sparse low woodland; mulga, discontinuous in scattered groups;  
**Beard vegetation association 82:** Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*; and  
**Beard vegetation association 111:** Hummock grasslands, shrub steppe; *Eucalyptus gamophylla* over hard spinifex (GIS Database).

Onshore Environmental (2014) consolidated the existing mapped BHP Billiton Iron Ore Pty Ltd vegetation associations and mapped a total of four broad floristic communities comprising of 17 vegetation types within the application area:

#### **Acacia Open Scrub**

MI AtpGwApy TpTb CcCs - Open Scrub of *Acacia tumida* var. *pilbarensis*, *Grevillea wickhamii* subsp. *hispidula* and *Acacia pyrifolia* var. *pyrifolia* over Hummock Grassland of *Triodia pungens* and *Triodia basedowii* over Open Tussock Grassland of *Cenchrus ciliaris* and *Cenchrus setiger* on brown sandy loam on minor drainage lines and floodplains.

MI AtpPIAmo TpTs ChEI - Open Scrub of *Acacia tumida* var. *pilbarensis*, *Petalostylis labicheoides* and *Acacia monticola* over Open Hummock Grassland of *Triodia pungens* and *Triodia* sp. Shovelanna Hill (S.van Leeuwen 3835) with Low Open Woodland of *Corymbia hamersleyana* and *Eucalyptus leucophloia* subsp. *leucophloia* on red brown sandy loam on minor drainage lines.

#### **\*Cenchrus Open Tussock Grassland**

GP CcCs AaApr AsyAa - Open Tussock Grassland of *Cenchrus ciliaris* and *Cenchrus setiger* with Low Open Woodland of *Acacia aptaneura* and *Acacia pruinocarpa* over High Open Shrubland of *Acacia synchronicia* and *Acacia aptaneura* on red sandy clay loam on gilgai plains.

#### **Eucalyptus Low Open Forest**

MA EcEvEx ApyAtpGr TtEaCpr - Low Open Forest of *Eucalyptus camaldulensis* subsp. *refulgens*, *Eucalyptus victrix* and *Eucalyptus xerothermica* over High Shrubland of *Acacia pyrifolia* var. *pyrifolia*, *Acacia tumida* var. *pilbarensis* and *Gossypium robinsonii* over Open Tussock Grassland of *Themeda triandra*, *Eulalia aurea* and *Cymbopogon procerus* on red brown clay loam on major drainage lines

#### **Triodia Hummock Grassland**

FP Tp ChApr GwApyAb - Hummock Grassland of *Triodia pungens* with Scattered Low Trees of *Corymbia hamersleyana* and *Acacia pruinocarpa* over Open Shrubland of *Grevillea wickhamii* subsp. *hispidula*, *Acacia pyrifolia* var. *pyrifolia* and *Acacia bivenosa* on brown loamy sand on floodplains.

HS TsTwTp EICH AhiAad - Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835), *Triodia wiseana* and *Triodia pungens* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamersleyana* over Low Open Shrubland of *Acacia hilliana* and *Acacia adoxa* var. *adoxo* on red brown sandy loam on hill slopes.

SP TbTp HIAAnAi Ch - Hummock Grassland of *Triodia basedowii* and *Triodia pungens* with High Open Shrubland of *Hakea lorea* subsp. *lorea*, *Acacia ancistrocarpa* and *Acacia inaequilatera* and Scattered Low Trees of *Corymbia hamersleyana* on red brown loamy sand on stony plains.

FS Ts CdHc AanAiGw - Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) with Low Open Woodland of *Corymbia deserticola* subsp. *deserticola* and *Hakea chordophylla* over Open Shrubland of *Acacia ancistrocarpa*, *Acacia inaequilatera* and *Grevillea wickhamii* subsp. *hispidula* on red brown sandy loam on footslopes and stony plains.

FS TsTpTw EI AbApaAan - Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835), *Triodia pungens* and *Triodia wiseana* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* and Open Shrubland of *Acacia bivenosa*, *Acacia pachyachra* and *Acacia ancistrocarpa* on red brown loam on footslopes and low undulating hills.

HS TsTw Eg GwSggAb - Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) and *Triodia wiseana* with Very Open Mallee of *Eucalyptus gamophylla* over Open Shrubland of *Grevillea wickhamii* subsp. *hispidula*, *Senna glutinosa* subsp. *glutinosa* and *Acacia bivenosa* on red brown sandy clay loam on hill slopes.

HS TwTbrTs EIECh PcaPasAhi - Hummock Grassland of *Triodia wiseana*, *Triodia brizoides* and *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia*, *Eucalyptus xerothermica* and *Corymbia hamersleyana* over Low Open Shrubland of *Ptilotus calostachyus*, *Ptilotus astrolasius* and *Acacia hilliana* on brown loam on eroded outcropping upper slopes and crests.

HS TwTs HcAbGw AptAhi - Hummock Grassland of *Triodia wiseana* and *Triodia* sp. Shovelanna Hill with Open Shrubland of *Hakea chordophylla*, *Acacia bivenosa* and *Grevillea wickhamii* subsp. *hispidula* over Low Open Shrubland of *Acacia pytcophylla* and *Acacia hilliana* on red brown sandy loam on upper hill slopes and hill crests.

ME TpTI ExAciCh PIAPyGr - Hummock Grassland of *Triodia pungens* and *Triodia longiceps* with Low Woodland of *Eucalyptus xerothermica*, *Acacia citrinoviridis* and *Corymbia hamersleyana* over High Shrubland of *Petalostylis labicheoides*, *Acacia pyrifolia* var. *pyrifolia* and *Gossypium robinsonii* on red brown clay loam on medium drainage lines and surrounding floodplains.

SA Tsc HIApaAd ScDcSp - Hummock Grassland of *Triodia schinzii* with Open Shrubland of *Hakea lorea* subsp. *lorea*, *Acacia pachyachra* and *Acacia dictyophleba* over Low Open Shrubland of *Sida cardiophylla*, *Dicrastylis cordifolia* and *Scaevola parviflora* on red loamy sand on sandy plains.

SD TscTb Ad CtCcuSc - Hummock Grassland of *Triodia schinzii* and *Triodia basedowii* with High Open Shrubland of *Acacia dictyophleba* over Low Open Shrubland of *Corchorus tectus*, *Crotalaria cunninghamii* and *Sida cardiophylla* on red sand on linear sand dunes.

SP Tb AbAprAad - Hummock Grassland of *Triodia basedowii* with Shrubland of *Acacia bivenosa*, *Acacia pruincarpa* and *Acacia adsurgens* on red loamy sand on stony plains.

SP TpTb Eg PIAbAan - Hummock Grassland of *Triodia pungens* and *Triodia basedowii* with Open Mallee of *Eucalyptus gamophylla* and Shrubland of *Petalostylis labicheoides*, *Acacia bivenosa* and *Acacia ancistrocarpa* on red brown loamy sand on stony plains and footslopes.

#### Clearing Description

Mindy Project.

BHP Billiton Iron Ore Pty Ltd applied to clear up to 100 hectares of native vegetation within a total boundary of approximately 6,470 hectares, for the purpose of hydrogeological and geotechnical investigations. The project is located approximately 60 kilometres north-west of Newman, in the Shire of East Pilbara.

#### Vegetation Condition

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

To:

Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).

#### Comment

### 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 Fortescue and Hamersley subregions of the Pilbara Interim Biogeographic Regionalisation of Australia bioregion (GIS Database). The Fortescue subregion is characterised by alluvial plains and river frontages, extensive salt marsh, mulga-bunch grass, and short grass communities on alluvial plains in the east. River gum woodlands fringe drainage lines. Northern limit of Mulga (*Acacia aneura*). An extensive calcrete aquifer (originating within a palaeo-drainage valley) feeds numerous permanent springs in the central Fortescue, supporting large permanent wetlands with extensive stands of river gum and cadjeput *Melaleuca* woodlands (CALM, 2002). The Hamersley subregion is characterised by Mulga low woodland over bunch grasses on fine textured soils in valley floors, and *Eucalyptus leucophloia* over

*Triodia brizoides* on skeletal soils of the ranges (CALM, 2002).

A consolidated flora and vegetation survey of the application area identified 17 different vegetation types (Onshore Environmental, 2014). The vegetation condition ranged from 'excellent' to 'good' with the majority of the vegetation in a 'very good' condition (Keighery, 1994) with the species composition and vegetation types within the application area typical of the local region and not considered to be unusually diverse (GIS Database). None of the vegetation associations recorded was identified as a Threatened or Priority Ecological Community (ENV Australia, 2007a).

No Threatened or Priority Flora species have been surveyed within the northern part of application area (Ecologia, 2005; ENV Australia, 2007a; Onshore Environmental 2012; 2014). The southern section of the application area has not been covered with a targeted flora survey. A search of the Department of Parks and Wildlife's Threatened and Priority Flora databases revealed two Threatened Flora species within a 5 kilometre radius of the application area (DPaW, 2015). The proponent has committed to undertaking a targeted flora survey of the southern section of the application area prior to clearing native vegetation. **Potential impacts to conservation significant flora as a result of the proposed clearing may be minimised by the implementation of a flora management condition.**

There were five weed species identified within the application area; Bipinnate Beggartick (*Bidens bipinnata*), Buffel Grass (*Cenchrus ciliaris*), Spiked Malvastrum (*Malvastrum americanum*), Birdwood Grass (*Cenchrus setiger*) and Whorled Pigeon Grass (*Setaria verticillata*) (BHP Billiton Iron Ore Pty Ltd, 2015). Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area. Potential impacts to the biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

There were six fauna habitat types recorded within the application area Biologic (2014). Most of the faunal habitats within the application area are considered to be common and widespread within the subregion and faunal assemblages are unlikely to be different to those found in similar habitat located elsewhere in the region (GIS Database). The proposed clearing of 100 hectares of native vegetation within the 6,470 hectare boundary is unlikely to have a significant impact on faunal diversity in a regional and local context.

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

**Methodology** BHP Billiton Iron Ore Pty Ltd (2015)  
Biologic (2014)  
CALM (2002)  
Ecologia (2005)  
ENV Australia (2007a)  
Keighery (1994)  
Onshore Environmental (2012)  
Onshore Environmental (2014)  
GIS Database

**(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**

Biologic (2014) consolidated the existing fauna mapping undertaken on BHP Billiton Iron Ore Pty Ltd tenure and identified six fauna habitat types occurring within the application area:

- 1. Drainage Area:** Characterised by *Eucalyptus xerothermica* and *Corymbia hamersleyana* woodland over broad-leafed *Acacia shrubland* on sandy loam soils sometimes with exposed rocky areas. These can have high vegetation density, complexity and diversity, and because they tend to occur on accretional or depositional areas, and often have deeper and richer soils than other fauna habitats. Grasses tend to be dominated by tussock grasses rather than spinifex, or the weed Buffel Grass \**Cenchrus ciliaris*.
- 2. Minor Drainage Line:** Located within the minor gullies and depressions, generally through the Crest/Slope habitat. Consists primarily of *Acacia* low shrubland. The understorey generally lacks density and often consists solely of sparse tussock grassland, often including the weed Buffel Grass \**Cenchrus ciliaris* where it has been introduced. The substrate can be sandy in places but generally consists of a skeletal loam gravel or stone.
- 3. Major Drainage Line:** Major Drainage Lines comprise mature River Red Gums, Coolibahs and stands of Silver Cadjeput over river pools. Open, sandy or gravelly riverbeds characterise this habitat type. In ungrazed areas, the vegetation adjacent to the main channel or channels is denser, taller and more diverse than adjacent terrain and can include reed beds around pools.
- 4. Sand Plain:** Sand Plain habitat is characterised by relatively deep sandy soils supporting dense spinifex grasslands and sparse shrubs. This habitat transitions into patches of Mulga in places. This habitat often occurs as terraces along Major Drainage Lines.
- 5. Stony Plain:** These are erosional surfaces of gently undulating plains, ridges and associated footslopes. Mainly support hard spinifex (and occasionally soft spinifex) with a mantle of gravel and pebbles.

6. **Crest / Slope:** These fauna habitats tend to be more open and structurally simple due to their recent depositional history than other fauna habitats, and are dominated by varying species of spinifex. A common feature of these habitats is a rocky substrate, often with exposed bedrock, and skeletal red soils. These are usually dominated by *Eucalyptus* woodlands, *Acacia* and *Grevillea* scrublands and *Triodia* spp. low hummock grasslands.

The landforms and habitat found within the application area are considered as being well represented in the local region (GIS Database). The Drainage habitat types are of moderate value as it has the potential to provide habitat for a number of conservation significant fauna (Biologic, 2014). The fauna assemblage of the study area is considered common and typical of the region and is not specifically dependent on the habitats within the study area (Biologic, 2014; BHP Billiton Iron Ore Pty Ltd, 2015).

The faunal surveys recorded three fauna species of conservation significance within the application area (Ecologia, 2005; ENV Australia, 2007b):

- *Apus pacificus* (Fork-tailed Swift) (Migratory - EPBC Act; Schedule 3 - WC Act);
- *Merops ornatus* (Rainbow Bee-eater) (Migratory - EPBC Act; Schedule 3 - WC Act); and
- *Pseudomys chapmani* (Western Pebble-mound Mouse) (Priority 4 - DPaW).

Based on habitat types, the additional conservation significant species are considered to potentially occur within the application area (Ecologia, 2005; ENV Australia, 2007b):

- *Dasyercus blythi* (Brush-tailed Mulgara) (Priority 4 - DPaW);
- *Liasis olivaceus barroni* (Pilbara Olive python) (Vulnerable - EPBC Act; Schedule 1 - WC Act); and

The Rainbow Bee-eater is a transient species and the habitat within the application area is not likely to represent significant habitat for this species (BHP Billiton Iron Ore Pty Ltd, 2015). The Rainbow Bee-eater is not likely to be reliant on habitat types within the application area and there is suitable breeding and foraging habitat within the local and surrounding region (BHP Billiton Iron Ore Pty Ltd, 2015; GIS Database).

The Fork-tailed Swift is entirely aerial within the Pilbara and may forage sporadically over the application area during summer months, associated with thunderstorms and cyclonic systems (Johnstone and Storr, 1998). The proposed clearing is not likely to impact the conservation significance of this species.

BHP Billiton Iron Ore Pty Ltd (2015) has stated that the mounds will be avoided where practicable, and that inactive mounds are treated as active mounds. Similar habitat is common outside the application area and the proposed clearing is not likely to significantly impact this species (BHP Billiton Iron Ore Pty Ltd, 2015).

Suitable habitat for the Brush-tailed Mulgara occurs in the northern half of the application area; however no active or inactive mulgara burrows have been identified (Biologic, 2014). Suitable habitat for this species is well common outside the application area. BHP Billiton Iron Ore Pty Ltd (2015) have committed that should any Mulgara burrows be identified, they will be avoided with a 10 metre buffer, where practicable.

While the Pilbara Olive Python has not been recorded within the application area, core habitat is located outside the application area (Gorge/Gully habitat) and the major drainage line within the application area is likely to provide suitable foraging habitat for this species. Potential impacts to this conservation significant species may be minimised by the implementation of a vegetation management condition.

Given the low impact nature of the proposed activities, the proposed clearing of 100 hectares of native vegetation within the 6,470 hectare boundary is unlikely to have a significant impact on faunal diversity in a regional and local context.

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

**Methodology** Biologic (2014)  
BHP Billiton Iron Ore Pty Ltd (2015)  
Ecologia (2005)  
ENV Australia (2007b)  
Johnstone and Storr (1998)  
GIS Database

**(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 known records of Threatened Flora within the application area (GIS Database). A search of the Department of Parks and Wildlife's Threatened and Priority Flora databases identified no Threatened Flora species as occurring within a 10 kilometre radius of the application area (DPaW, 2015).

Based on flora and vegetation surveys conducted by Onshore Environmental (2014), no Threatened Flora

species were recorded within the application area.

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

**Methodology** DPaW (2015)  
Onshore Environmental (2014)  
GIS Database

**(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**

A search of the available databases showed that there are no known Threatened Ecological Communities situated within 60 kilometres of the application area (GIS Database).

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

**Methodology** GIS Database

**(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 areas fall within the Pilbara Interim Biogeographic Regionalisation of Australia bioregion (GIS Database). The vegetation within the application areas is recorded as:

**Beard vegetation association 29:** Sparse low woodland; mulga, discontinuous in scattered groups;

**Beard vegetation association 82:** Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*; and

**Beard vegetation association 111:** Hummock grasslands, shrub steppe; *Eucalyptus gamophylla* over hard spinifex (GIS Database).

The above Beard vegetation associations retain approximately 99% or above of their pre-European extent at both the state and bioregion level (Government of Western Australia, 2014). The areas proposed to be cleared are not a significant remnant of native vegetation.

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

**Methodology** Government of Western Australia (2014)  
GIS Database

**(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**

Based on the vegetation mapping by Onshore Environmental (2014), there are five riparian vegetation types mapped within the application area:

- MI AtpGwApy TpTb CcCs;
- MI AtpPIAmo TpTs ChEI;
- MA EcEvEx ApyAtpGr TtEaCpr;
- FP Tp ChApr GwApyAb; and
- ME TpTI ExAciCh PIAPyGr.

These riparian vegetation types are likely to provide important habitat for fauna, especially avifauna utilising Mindy Mindy Creek, as the vegetation can provide faunal habitat of a moderate range of microhabitats with logs, leaf litter and tree hollows (GIS Database). The proposed clearing is likely to have some impact to the riparian vegetation and BHP Billiton Iron Pty Ltd will minimise disturbance where possible (BHP Billiton Iron Ore Pty Ltd, 2015). Potential impacts to riparian vegetation may be minimised through the implementation of a vegetation management condition.

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

**Methodology** BHP Billiton Iron Ore Pty Ltd (2015)  
Onshore Environmental (2014)  
GIS Database

**(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 the available datasets the application area intersects the Boolgeeda, Divide, Newman, River and Urandy land systems (GIS Database).

The Boolgeeda land system is characterised by consisting of stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands and mulga shrublands. Van Vreeswyk et al. (2004) report that the vegetation of this system is generally not prone to degradation and the land system is not susceptible to erosion.

The Divide land system is characterised by sandplains and occasional dunes supporting shrubby hard spinifex grasslands. Hard spinifex vegetation is not preferred by livestock except for one or two years following burning. Vegetation is not usually degraded although subject to fairly regular burning and there is some susceptibility to wind erosion immediately following burning, but stabilisation occurs rapidly after rain (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. The system is largely stabilised by buffel and spinifex and accelerated erosion is uncommon. However, susceptibility to erosion is high or very high if vegetative cover is removed (van Vreeswyk et al., 2004).

The Newman land system is characterised by undulating stony plains and hills supporting hard Spinifex grasslands and mulga shrublands with soft Spinifex (van Vreeswyk et al., 2004). Much of the system supports Spinifex vegetation which is not highly preferred by livestock. Generally the system has a low susceptibility to erosion.

The Urandy land system is described as stony plains, alluvial plains and drainage lines supporting shrubby soft spinifex grasslands (Van Vreeswyk et al., 2004). Most of this system is not susceptible to erosion or vegetation degradation (Van Vreeswyk et al., 2004).

The above land systems generally have a low erosion hazard, and the proposed clearing is not likely to cause appreciable land degradation.

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

**Methodology** Van Vreeswyk et al. (2004)  
GIS Database

**(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 is not located within any conservation area (GIS Database). The nearest conservation area Karijini National Park, located approximately 70 kilometres north-west of the application area (GIS Database).

Given the distance of the application area from Karijini National Park, the proposed clearing is not likely to provide a significant ecological linkage or fauna movement corridor and is not likely to impact the environmental values of the conservation area.

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

**Methodology** GIS Database

**(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 (GIS Database). The application area is located within the proclaimed Pilbara groundwater area under the *Rights in Water and Irrigation Act 1914* (GIS Database). 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 annual evaporation rate exceeds the annual average rainfall for Newman where surface water is likely to evaporate quickly with surface sheet flow and higher sediment levels generally occurring during larger rainfall events (BoM, 2015; GIS Database). Therefore, during normal rainfall events, the proposed clearing would not likely lead to an increase in sedimentation of watercourses within the application area.

The application area has a groundwater salinity that is potable (500 to 1,000 milligrams/Litre Total Dissolved

solids (TDS)) (GIS Database). With high annual evaporation rates and low annual rainfall, there is little recharge into regional groundwater. The proposed clearing is unlikely to further deteriorate the quality of underground water (GIS Database).

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

**Methodology** BoM (2015)  
GIS Database

**(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 is located within the Fortescue River catchment area (GIS Database). Given the size of the area to be cleared (100 hectares) in relation to the size of the catchment area (2,979,139 hectares) (GIS Database), the proposed clearing is not likely to increase the potential of flooding on a local or catchment scale.

With an average annual rainfall of 323 millimetres and an average annual evaporation rate of between 3,200 and 3,600 millimetres there is likely to be little surface flow during normal seasonal rains (BoM, 2015; GIS Database). Whilst large rainfall events may result in 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 (2015)  
GIS Database

**Planning instrument, Native Title, RIWI Act Licence, EP Act Licence, Works Approval, Previous EPA decision or other matter.**

**Comments**

There is one Native Title claim over the area under application (WC05/6) (Department of Aboriginal Affairs, 2015; 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*.

There are no registered Aboriginal Sites of Significance within the application area (Department of Aboriginal Affairs, 2015). 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 Regulation, Department of Parks and Wildlife 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 10 August 2015 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received.

**Methodology** Department of Aboriginal Affairs (2015)

**4. Assessor's recommendations**

**Comment / recommendation**

The application has been assessed against the clearing principles, planning instruments and other matters in accordance with s.51O of the *Environmental Protection Act 1986*, and the proposed clearing is at variance to Principle (f), may be at variance to Principle (g), is not likely to be at variance to Principles (a), (b), (c), (d), (h), (i), and (j), and is not at variance to Principle (e).

**5. References**

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- ENV Australia (2007a) Mindy North Exploration Lease Flora and Vegetation assessment. Internal report for BHP Billiton Iron Ore Pty Ltd.
- ENV Australia (2007b) Mindy North Exploration Lease Fauna assessment. Internal report for BHP Billiton Iron Ore Pty Ltd.
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- Johnstone, R.E. and Storr, G.M (1998) Handbook of Western Australian Birds: Volume 1 – Non-passerines (Emu to Dollarbird). Western Australian Museum, Perth, Western Australia.
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## 6. Glossary

### Acronyms:

<b>BoM</b>	Bureau of Meteorology, Australian Government
<b>DAA</b>	Department of Aboriginal Affairs, Western Australia
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia
<b>DEC</b>	Department of Environment and Conservation, Western Australia (now DPaW and DER)
<b>DER</b>	Department of Environment Regulation, Western Australia
<b>DMP</b>	Department of Mines and Petroleum, Western Australia
<b>DRF</b>	Declared Rare Flora
<b>DotE</b>	Department of the Environment, Australian Government
<b>DoW</b>	Department of Water, Western Australia
<b>DPaW</b>	Department of Parks and Wildlife, Western Australia
<b>DSEWPaC</b>	Department of Sustainability, Environment, Water, Population and Communities (now DotE)
<b>EPA</b>	Environmental Protection Authority, Western Australia
<b>EP Act</b>	<i>Environmental Protection Act 1986</i> , Western Australia
<b>EPBC Act</b>	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Federal Act)
<b>GIS</b>	Geographical Information System
<b>ha</b>	Hectare (10,000 square metres)
<b>IBRA</b>	Interim Biogeographic Regionalisation for Australia
<b>IUCN</b>	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
<b>PEC</b>	Priority Ecological Community, Western Australia
<b>RIWI Act</b>	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
<b>s.17</b>	Section 17 of <i>the Environment Protection Act 1986</i> , Western Australia
<b>TEC</b>	Threatened Ecological Community

### Definitions:

{DPaW (2013) Conservation Codes for Western Australian Flora and Fauna. Department of Parks and Wildlife, Western Australia}:-

<b>T</b>	<p><b>Threatened species:</b> Specially protected under the <i>Wildlife Conservation Act 1950</i>, listed under Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna or the Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).</p> <p>Threatened Fauna and Flora are further recognised by DPaW according to their level of threat using IUCN Red List criteria. For example Carnaby's Cockatoo <i>Calyptorhynchus latirostris</i> is specially protected under the <i>Wildlife Conservation Act 1950</i> as a threatened species with a ranking of Endangered.</p> <p><u>Rankings:</u> CR: Critically Endangered - considered to be facing an extremely high risk of extinction in the wild. EN: Endangered - considered to be facing a very high risk of extinction in the wild. VU: Vulnerable - considered to be facing a high risk of extinction in the wild.</p>
<b>X</b>	<p><b>Presumed Extinct species:</b> Specially protected under the <i>Wildlife Conservation Act 1950</i>, listed under Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora (which may also be referred to as Declared Rare Flora).</p>
<b>IA</b>	<p><b>Migratory birds protected under an international agreement:</b></p>



Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice.

Birds that are subject to an agreement between governments of Australia and Japan, China and The Republic of Korea relating to the protection of migratory birds and birds in danger of extinction.

**S Other specially protected fauna:**

Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice.

**P1 Priority One - Poorly-known species:**

Species that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, rail reserves and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.

**P2 Priority Two - Poorly-known species:**

Species that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, unallocated Crown land, water reserves, etc. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.

**P3 Priority Three - Poorly-known species:**

Species that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.

**P4 Priority Four - Rare, Near Threatened and other species in need of monitoring:**

- (a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.
- (b) Near Threatened. Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.
- (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

**P5 Priority Five - Conservation Dependent species:**

**Species that are not threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.**

**Principles for clearing native vegetation:**

- (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.
- (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.
- (c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare 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.
- (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.
- (f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.
- (g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.
- (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.
- (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.
- (j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.