



## 1. Application details

### 1.1. Permit application details

Permit application No.: 2552/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Robe River Pty Ltd

### 1.3. Property details

Property: Iron Ore (Cleveland-Cliffs) Agreement Act 1964, Mineral Lease 248SA (AML 701/248)  
Local Government Area: Shire Of Ashburton  
Colloquial name: Bungaroo Drilling

### 1.4. Application

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

## 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
<p>Beard vegetation associations have been mapped at a 1:250,000 scale for the whole of Western Australia. One Beard vegetation association is located within the application area (GIS Database):</p> <p>609 - Mosaic: Hummock grasslands, open low tree steppe; bloodwood with sparse kanji shrubs over soft spinifex/Hummock grasslands, open low tree steppe; snappy gum over <i>Triodia wiseana</i> lateritic crust.</p> <p>Vegetation surveys were carried out by Biota Environmental Sciences in 2005 and 2006, for the entire Bungaroo project area, within which the application area lies (Biota Environmental Sciences, 2007a). An analysis of aerial photographs for the survey area have identified 9 vegetation types that may potentially occur within the application area:</p> <p>Plains and Low Rises</p> <p>1. ChAiTw: <i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia bivenosa</i> open shrubland over <i>Triodia epactia</i> hummock grassland. This vegetation type occurred broadly over the stony undulating plains and some low stony rises. Scattered individuals of an undescribed spinifex species were often present on the low stony rises.</p> <p>2. ChAiTw/ChAiTe: <i>Corymbia hamersleyana</i> low open woodland over <i>Acacia inaequilatera</i> tall open shrubland over mixed scattered shrubs over <i>Triodia wiseana</i> hummock grassland /</p> <p>ChAiTe: <i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia bivenosa</i> open shrubland over <i>Triodia epactia</i> hummock grassland. This vegetation type occurred over gentle slopes of low rises. An open cover of <i>Gossypium australe</i> (Burrup Peninsula form) was often present.</p>	<p>Robe River Pty Ltd intend to clear approximately 21ha of native vegetation for the purpose of evaluation drilling. The project will include maintaining and establishing tracks, clearing of drill lines, creation of drill pads (20m x 20m) and the drilling of 249 holes (Robe River, 2008).</p> <p>The site is located approximately 130km east of Onslow and 150km south-west of Karratha (GIS Database). The application area is located within the Bungaroo valley and lies near two other previously cleared exploration areas. One of the exploration areas is located approximately 100m to the east of the application area and the other is approximately 5km west of the application area. Clearing will be performed using raised blade technique or scrub rake in level terrain (Robe River, 2008).</p>	<p>Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).</p> <p>To</p> <p>Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).</p>	<p>The vegetation condition was obtained from vegetation surveys performed by Biota Environmental Sciences in 2005 and 2006 as well as from an aerial photo of the application area.</p>

3. ChAbTe: *Corymbia hamersleyana* scattered low trees over *Acacia bivenosa* open shrubland over *Triodia epactia* hummock grassland. This vegetation type occurred in lower parts of the landscape over stony undulating plains or in drainage areas.

4. ChAiApyTe: *Corymbia hamersleyana* open woodland over *Acacia inaequilatera*, *A. pyrifolia* tall open shrubland over *Triodia epactia* hummock grassland. This vegetation type occurred over areas of low-lying stony undulating plain. There was often an open cover of *Gossypium australe* (Burrup Peninsula form).

#### Tall Stony Hills and Breakaways

Although the application area is located within a valley, vegetation maps of the area would indicate that the following vegetation type (5: AiTw) may occur in a small patch within the application area;

5. AiTw: *Acacia inaequilatera* tall open shrubland over *Triodia wiseana* hummock grassland. This vegetation type occurred primarily on the crests and slopes of tall hills on both sides of the Bungaroo Valley.

#### Drainage Areas

6. EvApyAtrTe: *Eucalyptus victrix* scattered low trees over *Acacia pyrifolia*, *A. trachycarpa* open shrubland over *Tephrosia rosea* var. *glabrior* low shrubland over *Triodia epactia* very open hummock grassland. This vegetation type is of high conservation significance and was recorded from gravelly creek channels. The cover of *Triodia epactia* ranged from scattered hummocks to a hummock grassland. There was typically an open herbland dominated by *Cleome viscosa*. The weed Mexican Poppy (*Argemone ochroleuca* subsp. *ochroleuca*) was abundant in places, and Buffel Grass (*Cenchrus ciliaris*) and Birdwood Grass (*Cenchrus setiger*) were also often present at low densities.

7. ChGpTe: *Corymbia hamersleyana* scattered low trees over *Grevillea pyramidalis* scattered tall shrubs over *Tephrosia rosea* var. *glabrior* scattered low shrubs over *Triodia epactia* hummock grassland. This vegetation type is of high conservation significance and dominates the broad gravelly floodplains of the Bungaroo Creek system. The distribution of this vegetation type is likely to be heavily influenced by flood scouring events. Some areas towards the outer margin of this vegetation type had large amounts of *Triodia wiseana* in the hummock grassland stratum. The shrubs *Acacia inaequilatera*, *A. pyrifolia* and *Gossypium australe* (Burrup Peninsula form) were also common.

#### Minor Flowlines

8. ChAtuTwTe: *Corymbia hamersleyana* low open woodland over *Acacia tumida* var. *pilbarensis* tall open scrub over *Triodia wiseana*, *T. epactia* very open hummock grassland. This vegetation type occurs in numerous flowlines. The spinifex ground cover was usually dominated by *Triodia wiseana*, less commonly by *T. epactia* or a combination of the two species.

9. ApyGOaGpyTeTw: *Acacia pyrifolia*, *Gossypium australe* (Burrup form), *Grevillea pyramidalis* shrubland to tall shrubland over *Tephrosia rosea* var. *glabrior* low open shrubland over *Triodia epactia*, *T. wiseana* open hummock grassland. This vegetation type occurred in minor flowlines.

(Biota Environmental Sciences, 2007a)

### 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 may be at variance to this Principle**

The application area is located within the Hamersley Interim Biogeographic Regionalisation for Australia (IBRA) subregion (GIS Database). This subregion is generally a mountainous area of Proterozoic sedimentary ranges and plateaux, dissected by gorges (basalt, shale and dolerite) (CALM, 2002). The Hamersley subregion consists primarily of 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).

The application area is located within the Bungaroo Valley on the outskirts of the Hamersley Ranges. The fauna of the Hamersley Ranges often has a lower species count than surrounding landforms such as the Fortescue Plain, however, the Hamersley Ranges generally have more fauna species with restricted distributions (Main Roads Western Australia, 2003). There is very high bird diversity across most of the Pilbara, including the Hamersley Ranges (CALM, 2002).

The application area would be expected to have suffered from previous disturbance as it is located within the Yalleen pastoral lease and in addition sites of previous clearing and drilling activities are located approximately 100m to the east and 5km to the west of the application area (GIS Database). Robe River (2008) have provided an aerial photograph of the application area that maps weed invasion and locations of rare flora. This photograph indicates that the vegetation of the application area suffers from weed invasion and has been disturbed and degraded due to previous grazing and mineral exploration activities.

Flora surveys of the Bungaroo project area and broader Bungaroo Valley were conducted by Biota Environmental Sciences in 2005 and 2006. These surveys recorded a total of 351 native vascular flora from 57 families (Biota Environmental Sciences, 2007a). This high species diversity could be attributed to the diversity of landforms within the survey area which consists of valley, drainage lines; permanent and non-permanent waterbodies, ridges and relatively flat plain areas (Biota Environmental Sciences, 2007a).

Thirteen weed species were recorded within the survey area, five of which have a high possibility of occurring within the application area; Mexican Poppy, Buffel Grass, Birdwood Grass, Awnless Barnyard Grass (*Echinochloa colona*) and Common Sowthistle (*Sonchus oleraceus*) (Biota Environmental Sciences, 2007a). Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. This in turn can lead to greater rates of infestation and further loss of biodiversity if the area is subject to repeated fires. No major infestations were observed (Biota Environmental Sciences, 2007a). However, it is recommended that should a permit be granted, a condition be placed on the permit with regard to weed management.

Biota Environmental Sciences performed two fauna surveys that included the application area. These surveys recorded a total of 147 vertebrate species from 56 families including 81 bird species, 13 mammal species, 47 reptile species and 3 amphibian species (Biota Environmental Sciences, 2007b). This suggests the area is potentially diverse in bird and reptile species.

The landforms, vegetation types and fauna habitats in the application area are well represented locally and within the Pilbara region generally (Robe River, 2008). Therefore, the proposed clearing is unlikely to have a significant impact upon the biological diversity of the region.

Based on the above, the proposed clearing may be at variance to this Principle. It is recommended that should a permit be granted, a condition be imposed on the permit with regard to rehabilitation. This condition will necessitate the stockpiling of all cleared topsoil and vegetation and rehabilitation shall take place within six months of the completion of the activity for which the clearing took place. Rehabilitation will involve re-shaping the surface of each cleared area using the stockpiled topsoil and vegetation.

**Methodology**      Biota Environmental Sciences (2007a)  
Biota Environmental Sciences (2007b)  
CALM (2002)  
Main Roads Western Australia (2003)  
Robe River (2008)  
GIS Database  
- Interim Biogeographic Regionalisation of Australia  
- Clearing Instruments (PMV\_Status)

#### (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**

Biota Environmental Sciences (2007b) have identified four main fauna habitats within the survey area;  
1) Lower Scree Slopes - vegetated with open Acacia shrubland over open *Triodia hummock* grasslands.  
2) Major Creeklines - Dense vegetation of River Gum (*Eucalyptus camaldulensis*) forest over a *Cyperus vaginatus* sedgeland in a permanent soak, together with fringing vegetation of *Eucalyptus xerothermica* low

forest.

3) Stony Plains and Low Rises - Shrublands of various *Acacia* species, including *Acacia ancistrocarpa*, *A. bivenosa* and *A. inaequilatera*, over hummock grasslands of *Triodia wiseana* and/or *T. epactia* on the stony undulating plains.

4) Loamy Plains - Floodplains of the Bungaroo Creek drainage systems, comprising *Corymbia hamersleyana* low open woodlands over scattered tall shrubs of *Grevillea pyramidalis* over *Triodia epactia* hummock grasslands, together with the broad cobbly creek channels containing scattered Coolibahs (*Eucalyptus victrix*).

The fauna surveys performed by Biota Environmental Sciences in 2005 and 2006 have previously recorded five fauna species of conservation significance within the survey area; Northern Quoll (*Dasyurus hallucatus*), Western Pebble-mound Mouse (*Pseudomys chapmani*), Australian Bustard (*Ardeotis australis*), Bush Stone-curlew (*Burhinus grallarius*) and a skink (*Notoscincus butleri*) (Biota Environmental Sciences, 2007b). In addition they have identified further fauna species of conservation significance that could potentially occur within the survey area; Orange Leaf-nosed Bat (*Rhinonicteris aurantius*), a blind snake (*Ramphotyphlops ganei*), Night Parrot (*Pezoporus occidentalis*), Pilbara Olive Python (*Liasis olivaceus barroni*), Peregrine Falcon (*Falco peregrinus*), Long-tailed Dunnart (*Sminthopsis longicaudata*), Ghost Bat (*Macroderma gigas*) and the Star Finch (*Neochima ruficauda subclarescens*). In addition one migratory species was recorded within the survey area; Wood Sandpiper (*Tringa glareola*) (Biota Environmental Sciences, 2007b).

The fauna surveys have recorded invertebrate short-range endemic species as occurring within the survey area. In particular one species of *Rhagada*, a non-marine mollusc, has been recorded within the survey area, approximately 3km north-west of the application area (Biota Environmental Sciences, 2007b). Little is known regarding this species and its distribution is uncertain (Biota Environmental Sciences, 2007b). However, although this species has a high chance of occurring within the application area, most records come from areas outside of the proposed mining impact areas (Biota Environmental Sciences, 2007b). Therefore the vegetation of the application area is not likely to represent significant habitat for this species.

The Orange Leaf-nosed Bat and the Ghost Bat may potentially forage over the application area, however, due to a lack of suitable roosting sites, the vegetation of the application area is not considered to represent significant habitat for these species. The vegetation of the application area is also not expected to represent significant habitat for the Australian Bustard, Bush Stone-curlew, Star Finch and Wood Sandpiper as these species all have wide distributions. In addition the application area is not expected to support suitable habitat for the Pilbara Olive Python or the Night Parrot due to the limited amount of free-standing water within the application area.

The skink (DEC - Priority 4) is restricted to the coastal areas of the Pilbara. It is known to inhabit spinifex dominated areas adjacent to riparian habitats (Wilson and Swann, 2003). Numerous recordings of this species exist within the survey area and therefore it has a high chance of occurring within the application area. However, the habitat types are well represented locally and on a regional scale and therefore, the vegetation of the application area is not likely to represent significant habitat for this species.

Western Pebble-mound Mice (DEC - Priority 4) colonies generally occur on gentler slopes of rocky ranges where the ground is covered by a stony mulch and vegetated by hard spinifex, often with an overstorey of eucalypts and scattered shrubs (Van Dyck and Strahan, 2008). Mounds are often sited close to narrow ribbons of *Acacia*-dominated scrub that grow along incised drainage lines (Van Dyck and Strahan, 2008). One mouse has previously been caught in an area located approximately 1.5km east of the application area and 2 inactive mounds have been recorded in a nearby area. Therefore, this species could potentially occur within the application area, however, this species is relatively widespread in the Pilbara and given the large amount of suitable habitat that surrounds the application area, it is not likely that the vegetation within the application area is significant habitat for this species.

The Northern Quoll (Schedule 1 - Fauna that is rare or likely to become extinct, Wildlife Conservation (Specially Protected Fauna) Notice, 2008) can be found in a range of areas but are most common on dissected rocky escarpment (Van Dyck and Strahan, 2008). This species is also found in eucalypt forest and woodland and utilise a variety of den sites including hollow logs and trees, rock crevices, caves, roofs of houses, termite mounds and goanna burrows (Van Dyck and Strahan, 2008). This species has previously been recorded within the survey area (Biota Environmental Sciences, 2007b) and therefore has a high chance of occurring within the application area. However, given the large amount of suitable habitat type that surrounds the application area, it is not likely that the vegetation within the application area is significant habitat for this species.

Based on known distributions the Blind Snake (DEC - Priority 1) could potentially occur within the application area. Relatively little is known regarding the Blind Snake and its preferred habitat and therefore, it is unknown whether the vegetation of the application area would represent significant habitat for this species. However, given that the habitat types found within the application area are well represented on both a local and regional scale, it is not likely that the vegetation within the application area represents significant habitat for this species.

The Peregrine Falcon (Schedule 4 - Other specially protected fauna, Wildlife Conservation (Specially Protected Fauna) Notice, 2008) is known to inhabit most areas in Australia and utilise cliffs, tall trees and granite outcrops for nesting (Australian Museum Online, 2007b). The Peregrine Falcons' preferred food source is almost exclusively birds such as pigeons, parrots and passerines (Johnstone and Storr 1998 as cited in Biota Environmental Sciences, 2007b). The fauna survey area is high in suitable prey species such as parrots (Biota

Environmental Sciences, 2007b) and therefore, this species could potentially occur within the application area. The application area is located within a valley and therefore, the Peregrine Falcon is not likely to use the application area as a nesting site however, it may form part of its hunting ground. However the habitat types of the application area is well represented on a local and regional scale and therefore, the vegetation within the application area is not likely to represent significant habitat for this species.

The Long-tailed Dunnart (DEC - Priority 4) occurs in rugged rocky landscapes that support low open woodland or shrubland of Acacia's (especially Mulga) with an understorey of spinifex hummocks (DNREA, 2007). Based on habitat type, this species could potentially occur within the application area. However, given the large amount of suitable vegetation that surrounds the application area, it is not likely that the vegetation within the application area is significant habitat for this species.

The habitat types found within the application area are well represented locally and within the Pilbara region generally. Therefore, the vegetation within the application area is not likely to represent significant habitat for the fauna species found within the Bungaroo Valley.

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

**Methodology** Australian Museum Online (2007)  
Biota Environmental Sciences (2007b)  
DNREA (2007)  
Van Dyck and Strahan (2008)  
Wilson and Swann (2003)

**(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, no Declared Rare or Priority flora species occur within the application area (GIS Database). The nearest known Priority flora is a population of *Terminalia supranitifolia* (Priority 3), located approximately 3km north-west of the application area (GIS Database).

Biota Environmental Sciences conducted vegetation surveys of the entire Bungaroo project area in 2005 and 2006. No Declared Rare Flora were recorded during the surveys (Biota Environmental Sciences, 2007a). At the time of the survey five Priority flora species were recorded within the survey area (Biota Environmental Sciences, 2007a). Two of these species which have since been removed from the Priority flora list, were recorded within the application area; *Abutilon trudgenii* ms and *Sida arsinata*. In addition, a previously undescribed spinifex species has been recorded within the application area. The above species are relatively widespread throughout the Bungaroo Valley (Biota Environmental Sciences, 2007a) and are therefore not restricted to the application area.

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

**Methodology** Biota Environmental Sciences (2007a)  
GIS Database  
- Declared Rare and Priority flora  
- Threatened Plant Communities

**(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) located within the application area (GIS Database). The nearest known TEC's are the Millstream stygofauna community, located approximately 75km north-east of the application area, and the Themeda grassland community, approximately 100km south-east of the application area (GIS Database). At these remote distances there is little likelihood of any impact to these TECs from the proposed clearing.

Biota Environmental Sciences (2007a) report that no TEC's have been identified during the flora surveys.

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

**Methodology** Biota Environmental Sciences (2007a)  
GIS Database  
- Threatened Ecological Communities

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

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

The application area falls within the IBRA Pilbara Bioregion. Shepherd et al. (2001) report that approximately 100% of the pre-European vegetation still exists in this Bioregion (see table below). The vegetation in the application area is recorded as Beard Vegetation Association 609: Mosaic: Hummock grasslands, open low tree steppe; bloodwood with sparse kanji shrubs over soft spinifex / Hummock grasslands, open low tree steppe; snappy gum over *Triodia wiseana* lateritic crust (GIS Database; Shepherd et al., 2001). According to Shepherd et al., (2001) approximately 100% of this vegetation association remains within the Bioregion (see table below).

Therefore the vegetation within the application area is not a significant remnant of native vegetation within an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% of Pre-European area in IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,164	17,794,651	~99.9	Least Concern	6.3
Beard veg assoc. – State					
609	74,188	74,188	~100.0	Least Concern	0.00
Beard veg assoc. – Bioregion					
609	74,188	74,188	~100.0	Least Concern	0.00

\* Shepherd et al. (2001) updated 2005

\*\* Department of Natural Resources and Environment (2002)

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

**Methodology** Department of Natural Resources and Environment (2002)  
Shepherd et al. (2001) updated 2005  
GIS Database  
- 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**

The application area is located in a broad valley and floodplain area (Robe River, 2008) and is in a semi-desert-tropical region (ANRA, 2007). This region has an average annual rainfall of approximately 300mm falling mainly during the summer months, and an average annual evaporation rate of approximately 2,500mm (ANRA, 2007). Hence, the presence of surface water resulting from significant rain events is relatively short-lived.

A minor creekline (Bungaroo Creek) and a few minor drainage lines run through the application area (GIS Database). Based on the above, the creek is expected to be dry except following heavy rainfall which is usually associated with tropical cyclone events (ANRA, 2007). The access track within the application area will intersect a few minor ephemeral rainage lines and minor creek beds (Robe River, 2008). If crossings are required for vehicle access, the crossings will be constructed to follow the natural creek bed surfaces and therefore avoid upstream ponding and ensure banks and drainage flow are not significantly altered or interfered with (Robe River, 2008).

Based on the above, the proposed clearing is at variance to this Principle. However, the proposed clearing is not likely to significantly impact any watercourse or wetland due to the small scale of clearing of vegetation types associated with watercourses.

**Methodology** ANRA (2007)  
GIS Database  
- Hydrography - linear

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

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

The application area is broadly mapped as falling within the Boolgeeda and Urandy Land Systems (GIS Database).

The Boolgeeda Land System consists of predominantly depositional surfaces; very gently inclined stony slopes and plains below hill systems (Van Vreeswyk et al., 2004). The vegetation of this land system is generally not prone to degradation and the system is not susceptible to erosion (Van Vreeswyk et al., 2004). An analysis of aerial photography for the application area reveals the application area is most likely to fall within the 'Stony lower plains' and the 'Narrow drainage floors and channels'. The soil types within these land units (red loamy earths and red loamy earths and minor self-mulching clays. Channels with river bed soils) are not susceptible to erosion (Van Vreeswyk et al, 2004). This system is subject to fairly frequent burning (Van Vreeswyk et al, 2004) which could potentially exacerbate the spread of weeds following fire.

The Urandy Land System consists of depositional surfaces; level stony plains and plains and fans of sandy alluvium; subject to sheet flow and overbank flooding (Van Vreeswyk et al., 2004). Most of this system is not susceptible to erosion or vegetation degradation (Van Vreeswyk et al., 2004). An analysis of aerial photography for the application area reveals the application area is most likely to fall within the 'Alluvial Plains'. The soil types within this land unit (red loamy earths with some shallow sandy duplex soils) are not generally susceptible to erosion (Van Vreeswyk et al., 2004).

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

**Methodology** Robe River (2008)  
Van Vreeswyk et al. (2004)  
GIS Database  
- Rangeland 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 nearest conservation area is the Millstream-Chichester National Park located approximately 70km north-east of the application area (GIS Database). Given the distance of the application area from any conservation areas, the removal of 21ha of native vegetation is not expected to have an impact on the environmental values of these conservation areas.

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

**Methodology** GIS Database  
- CALM Managed Land and Waters

**(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**

A minor creekline runs through the application area (GIS Database), and the application area would be subject to flooding during extreme rainfall events (Robe River, 2008). In addition, the Urandy land system can be subject to sheet flows and overbank flooding (Van Vreeswyk et al, 2004). However, the application area is located on relatively flat ground (GIS Database), consisting primarily of stony soils not prone to erosion. Furthermore, the majority of the application area falls within the Boolgeeda land system which is not susceptible to erosion. Hence, the proposed clearing is not likely to result in any significant increase in sediments carried in surface water runoff.

The proposed clearing of 21ha of native vegetation, for the purposes of mineral exploration, is not likely to have any significant impact on surface or ground water quality, or groundwater levels.

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

**Methodology** Robe River (2008)  
Van Vreeswyk et al (2004)  
GIS Database  
- Hydrography - linear

**(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 in a broad valley and flood plain associated with the Bungaroo Creek system (GIS Database; Robe River, 2008). A minor creekline (Bungaroo Creek) runs through the application area and eventually feeds into the Robe River (GIS Database). The region is subject to cyclones and natural flooding of the floodplain occurs during extreme rainfall events (Robe River, 2008). However, the clearing of 21ha of vegetation, in relation to the size of the Robe River Catchment area (approximately 757,138ha; GIS Database), is not likely to lead to an increase in flood height or duration.

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

**Methodology** Robe River (2008)  
GIS Database  
- Hydrography - linear  
- Hydrographic Catchments - Catchments

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

##### Comments

There is a native title claim (WC99/012) over the area under application. This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the tenement 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 several Aboriginal Sites of Significance that overlap with the application area (GIS Database). Robe River have undertaken a heritage survey of the application area and will avoid any Sites of Significance (Robe River, 2008). 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.

There were no public submissions received during the public comments period.

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.

**Methodology** Robe River (2008)  
GIS Database  
- Aboriginal Sites of Significance  
- Native Title Claims

#### 4. Assessor's comments

##### Comment

The proposal has been assessed against the Clearing Principles, and is not at variance to Principle (e), is not likely to be at variance to Principles (a), (b), (c), (d), (g), (h), (i) and (j) and is at variance to Principle (f).

Should the permit be granted it is recommended that conditions be imposed on the permit for the purposes of weed management, rehabilitation, record keeping and permit reporting.

#### 5. References

- ANRA (2007). Rangelands overview: Pilbara [online]. Available from: <http://www.anra.gov.au/tropics/rangelands/overview/wa/ibra-pil.html>. Accessed 3 July, 2008.
- Australian Museum Online (2007). Birds, Peregrine Falcon [online]. Available from: [http://www.austmus.gov.au/wild\\_kids/birds/perigrine\\_falcon.htm](http://www.austmus.gov.au/wild_kids/birds/perigrine_falcon.htm) Accessed 24 July, 2008.
- Biota Environmental Sciences (2007a). A Vegetation and Seasonal Flora Survey of the Bungaroo Trial Pit and Transport Corridor to Mesa J, near Pannawonica, and Sampling of the Broader Bungaroo Valley. Robe River Iron Associates. Western Australia.
- Biota Environmental Sciences (2007b). Bungaroo Trial Pit and Transport Corridor to Mesa J, near Pannawonica. Pilbara Iron Company, Western Australia.
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## 6. Glossary

### Acronyms:

<b>BoM</b>	Bureau of Meteorology, Australian Government.
<b>CALM</b>	Department of Conservation and Land Management, Western Australia.
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia.
<b>DA</b>	Department of Agriculture, Western Australia.
<b>DEC</b>	Department of Environment and Conservation
<b>DEH</b>	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
<b>DEP</b>	Department of Environment Protection (now DoE), Western Australia.
<b>DIA</b>	Department of Indigenous Affairs
<b>DLI</b>	Department of Land Information, Western Australia.
<b>DoE</b>	Department of Environment, Western Australia.
<b>DoIR</b>	Department of Industry and Resources, Western Australia.
<b>DOLA</b>	Department of Land Administration, Western Australia.
<b>DoW</b>	Department of Water
<b>EP Act</b>	Environment Protection Act 1986, Western Australia.
<b>EPBC Act</b>	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
<b>GIS</b>	Geographical Information System.
<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>RIWI</b>	Rights in Water and Irrigation Act 1914, Western Australia.
<b>s.17</b>	Section 17 of the Environment Protection Act 1986, Western Australia.
<b>TECs</b>	Threatened Ecological Communities.

### 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*} :-

<b>P1</b>	<b>Priority One - Poorly Known taxa:</b> 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.
<b>P2</b>	<b>Priority Two - Poorly Known taxa:</b> 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.
<b>P3</b>	<b>Priority Three - Poorly Known taxa:</b> 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.
<b>P4</b>	<b>Priority Four – Rare taxa:</b> 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.
<b>R</b>	<b>Declared Rare Flora – Extant taxa (= Threatened Flora = Endangered + Vulnerable):</b> 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.
<b>X</b>	<b>Declared Rare Flora - Presumed Extinct taxa:</b> 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] :-

<b>Schedule 1</b>	<b>Schedule 1 – Fauna that is rare or likely to become extinct:</b> being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.
<b>Schedule 2</b>	<b>Schedule 2 – Fauna that is presumed to be extinct:</b> 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.