



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4695/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Robe River Limited

1.3. Property details

Property: Iron Ore (Robe River) Agreement Act 1964, Mineral Lease 248SA (AML 70/248)
Local Government Area: Shire of Ashburton
Colloquial name: Middle Robe Valley Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 3 February 2012

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:

173: Hummock grasslands, shrub steppe; kanji over soft spinifex and *Triodia wiseana* on basalt; and
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* on a lateritic crust (GIS Database).

A botanist from Astron Environmental Services (Astron) conducted a flora and vegetation survey over the application area in June and September 2011. Fourteen vegetation types were recorded within the application area (Astron, 2011).

Plains (Including Floodplains)

Vegetation Type PI01: *Acacia inaequilatera* low open woodland over *Triodia epactia/pungens* hummock grassland (occasionally scattered low trees of *Hakea chordophylla*).

Vegetation Type PI03: *Eucalyptus leucophloia* subsp. *leucophloia* scattered trees over *Corymbia hamersleyana* low open woodland over *Senna notabilis* and *Corchorus parviflorus* open shrubland over *Triodia wiseana* hummock grassland.

Major Creeklines

Vegetation Type Ma01: *Eucalyptus camaldulensis* and *Melaleuca argentea* open forest over *Petalostylis labicheoides* and *Acacia trachycarpa* scattered tall shrubs over *Cyperus vaginatus* scattered sedges, **Cenchrus ciliaris* scattered tussock grasses and **Cynodon dactylon* and *Eragrostis tenellula* scattered grasses.

Vegetation Type Ma02: *Eucalyptus camaldulensis* open forest over mixed *Acacia* spp. and *Melaleuca linophylla* (*A. ampliceps*, *A. colei* var. *ileocarpa*, *A. coriacea* subsp. *pendens*, *A. pyriformis* and *A. trachycarpa*) scattered tall shrubs over **Cenchrus ciliaris* very open tussock grassland and *Cyperus vaginatus* very open sedgeland.

Vegetation Type Ma03: *Eucalyptus camaldulensis*, *Melaleuca argentea* and **Phoenix dactylifera* woodland over **Cenchrus ciliaris* open tussock grassland, **Setaria verticillata* very open tussock grassland and *Cyperus vaginatus* scattered sedges.

Vegetation Type Ma04: *Eucalyptus victrix* low open woodland over *Gossypium robinsonii* tall open shrubland over *Tephrosia rosea* var. *clementii*, *Tephrosia rosea* var. *rosea* and *Sida* sp. Pilbara (A.A Mitchell PRP 1543) scattered low shrubs over *Triodia epactia* very open hummock grassland.

Vegetation Type Ma05: *Eucalyptus victrix* open woodland over *Corymbia candida* low open woodland over **Vachellia farnesiana* and *Sesbania formosa* tall open shrubland over **Cenchrus ciliaris* open tussock grassland.

Vegetation Type Ma06: *Acacia citrinoviridis* (*Grevillea wickhamii*) low woodland over *Triodia wiseana* open hummock grassland.

Mesas, Hills, Breakaways and Slopes

Vegetation Type MHBS01: *Acacia wanyu* open heath over *Triodia wiseana* hummock grassland.

Vegetation Type MHBS02: *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees to low open woodland over *A. wanyu* and *Senna glutinosa* subsp. *glutinosa* scattered shrubs over *Triodia wiseana* hummock grassland.

Vegetation Type MHBS03: *Acacia inaequilatera* tall open shrubland over *Triodia wiseana* hummock grassland.

Vegetation Type MHBS04: *Triodia wiseana* hummock grassland.

Vegetation Type MHBS05: *Corchorus parviflorus* and *Senna notabilis* low shrubland.

Vegetation Type Previously Mined Mesas: Disturbed vegetation on previously mined Mesas, historical access tracks and haul roads.

* Introduced species

Clearing Description

Robe River Limited has applied to clear up to 25 hectares of native vegetation within an application area of approximately 2,181 hectares for the purpose of mineral exploration. Clearing will be for drill pads, sumps and access tracks. The application area is located in the Robe Valley, approximately 10 kilometres east of Pannawonica.

The vegetation will be cleared using a dozer with the raised blade clearing technique where possible. Vegetative material and topsoil will be stockpiled for use in rehabilitation.

Vegetation Condition

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

To:

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

Comment

The vegetation condition was assessed by a botanist from Astron (2011).

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 intersects the Chichester and Hamersley Interim Biogeographic Regionalisation of Australia (IBRA) subregions, both of which are within the Pilbara bioregion (GIS Database). The Chichester subregion is characterised by plains supporting a shrub steppe of *Acacia inaequilatera* over *Triodia wiseana* hummock grasslands, while *Eucalyptus leucophloia* tree steppes occur on ranges (CALM, 2002). The Hamersley subregion is generally described as 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 flora and vegetation survey of the application area was conducted by a botanist from Astron in June and September 2011. Fourteen vegetation types were recorded over three broad landforms (Astron, 2011). The landform 'Major creeklines' was observed within the application area and this corresponds with an ecosystem considered at risk, 'All major ephemeral water courses', in the Chichester and Hamersley subregions (CALM, 2002; Astron, 2011). However, all the vegetation types, including those associated with the major creeklines, are well represented outside the application area in the broader region (Astron, 2011). There were no unusual or restricted flora assemblages recorded in any of the vegetation types nor were any of the vegetation types notable for their elevated diversity of flora species (Astron, 2011).

No Declared Rare Flora or Threatened Ecological Communities were recorded during the field survey by Astron or have previously been recorded in the application area (Astron, 2011; GIS Database). The vegetation types recorded during the field survey did not correspond with any floristic Priority Ecological Community (PEC) (Astron, 2011).

There is an occurrence of the PEC 'Subterranean invertebrate communities of mesas in the Robe Valley region' within the application area (GIS Database). The habitat of the troglobitic faunal communities is the humidified pisolitic strata (DEC, 2010) and this subterranean habitat is unlikely to be affected by the relatively small amount of clearing above ground.

No Priority flora species were recorded within the application area (Astron, 2011; GIS Database). One Priority 4 flora species, *Rhynchosia bungarensis*, was recorded during the survey just outside the application area on

the edge of the Robe River (Astron, 2011).

Eleven introduced flora species were recorded within the application area (Astron, 2011). None of the eleven introduced species are listed as Declared Plants in the districts of Ashburton or Roebourne under the *Agriculture and Related Resources Protection Act 1976* (Astron, 2011). Infestations of Buffel Grass (*Cenchrus ciliaris*) and Kapok Bush (*Aerva javanica*) were present on the historical haul roads onto the mesas and on the tops of mined mesas (Astron, 2011). Infestations of introduced species were also recorded adjacent to the unsealed pastoral station access tracks that dissect the application area (Astron, 2011). Care must be taken to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested areas. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

The application area has a diverse range of fauna habitats and is likely to support a range and abundance of vertebrate fauna species (Astron, 2011). The permanent water pools in association with the Robe River in particular would support a large diversity and abundance of vertebrate fauna species as they provide a water source during the dry season (Astron, 2011). Unmined rocky breakaways and ridgelines in association with the Robe River may also be considered significant due to the diversity and number of species that are likely to use them for sheltering, feeding and breeding (Astron, 2011).

The vegetation condition in the survey area ranged from completely degraded to excellent (Astron, 2011). The majority of the mesas in the application area have been partially mined and were in a completely degraded condition. Disturbance from historical access tracks and haul roads was also found within the application area (Astron, 2011). Cattle were widespread through the application area. Grazing and trampling was particularly pronounced in the vicinity of permanent water pools along the Robe River and major creeks, as well as around cattle yards and cattle watering stations (Astron, 2011). The disturbance in parts of the application area diminishes its potential to support biological diversity.

The application area does not contain a higher than expected level of floristic diversity but it does contain habitat with the potential to support a high level of fauna diversity. The range of fauna habitat types and the significance of several of these means the application area may comprise a high level of biological diversity. However, the application area is much larger than the area proposed to be cleared (2,181 hectares compared to 25 hectares). Additionally, most of the drilling is anticipated to take place in areas already mined and cleared and there is already significant disturbance from historical mining activities within the application area (Astron, 2011).

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

Methodology Astron (2011)
CALM (2002)
DEC (2010)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Threatened and Priority Flora
- 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 may be at variance to this Principle

No targeted fauna surveys have been conducted over the application area. A desktop search was conducted and fauna habitat observations of the application area were recorded by an Astron zoologist during field surveys in June and September 2011.

Based on the site inspection and the identified vegetation types, the following seven major fauna habitat types were identified in the application area (Astron, 2011):

- Major ephemeral rivers and creeks: Vegetation was complex, comprising *Eucalyptus victrix*, and/or *E. camaldulensis* and *Melaleuca argentea* open forest with *Petalostylis labicheoides* and mixed *Acacia* sp. shrubland over scattered sedges, scattered tussock grasses and scattered grasses. Soils were alluvial and in the flow lines had a covering of logs and other vegetative material;
- Permanent water pools: In association with the Robe River. The largest diversity and abundance of fauna species were observed in this habitat type. Fringing vegetation was sparse, comprising *Eucalyptus* trees and sedges;
- Minor ephemeral creeks: Vegetation comprised *Acacia citrinoviridis* and *Grevillea wickhamii* low woodland over *Triodia wiseana* open hummock grassland. No water was present at the time of the survey. Soils were alluvial sands with a stony surface and minimal vegetative debris;
- Low lying plain: Vegetation comprised *Acacia inaequilatera* open woodland over *Triodia* sp. hummock grassland. Plains were generally adjacent to, or nearby, a watercourse. Soils were sandy clay loam, with minimal cover in between hummocks;
- Tops of mesas: Comprising Channel Iron Deposits (CID). Vegetation comprised *Acacia wanyu* heath over *Triodia* sp. hummock grassland. Vegetation in this location was denser than that found on the hill slopes and plains, however, with minimal cover between hummocks. Soils were sandy, loam clay with

- a stony surface.
- Rocky breakaways: Of CID, including shallow caves and shelters (north and south facing). If present, vegetation comprised sparse *Triodia* sp. hummocks, tussock grasses and herbs; and
- Stony hills and slopes: Vegetation comprised *Eucalyptus leucophloia* trees over *Acacia* sp. shrubland and *Triodia* sp. hummock grassland. Soils were red-brown clay loam or sandy clay loam, with stony surfaces and the occasional small rocky outcrop. Termite mounds were present on some lower slopes.

Multiple shallow caves and shelters were identified in the breakaways of mesas and hills. In those that were searched there were often evidence of marsupials in the form of scats and tracks (Astron, 2011). Several caves along the Robe River were unable to be searched due to their high position on the rock face (Astron, 2011).

The application area has a diverse range of fauna habitats and is likely to support a range and abundance of vertebrate fauna species (Astron, 2011). The majority of fauna habitat within the application area is considered to be in very good condition, however, the habitats that have been previously disturbed by mining activities comprise a modified landscape, with incomplete soil and vegetation structure. This would affect the species diversity and richness, and would likely result in a different species assemblage in these areas (Astron, 2011).

The identified fauna habitats are found throughout the Pilbara region and are not restricted to the application area (Astron, 2011). However, habitats associated with the Robe River, especially permanent or semi-permanent water pools are considered significant as they provide a water source during the dry season (Astron, 2011). Unmined rocky breakaways and ridgelines in association with the Robe River may also be considered significant due to the diversity and number of species that are likely to use them for sheltering, feeding and breeding (Astron, 2011).

Two listed Migratory bird species were observed during the field survey: Rainbow Bee-eater (*Merops ornatus*) and White-bellied Sea-eagle (*Haliaeetus leucogaster*). These species were observed at creeks and along the Robe River (Astron, 2011). The Rainbow Bee-eater is widely distributed throughout Australia and uses a variety of habitats (Department of Sustainability, Environment, Water, Population and Communities, 2012b). The White-bellied Sea-eagle is also widely distributed and utilises a variety of habitats generally characterised by the presence of large areas of open water (Department of Sustainability, Environment, Water, Population and Communities, 2012a). The clearing of 25 hectares of potential habitat is unlikely to impact these migratory species.

The Threatened fauna species Middle Robe Draculoides (*Draculoides mesozeirus*) has previously been recorded within the application area (GIS Database). It is a subterranean arachnid and the relatively small amount of proposed clearing for exploration activities is unlikely to impact on the subterranean habitat of this species.

The desktop study by Astron (2011) listed a number of conservation significant fauna species that have the potential to occur within the application area. These are listed below along with the likelihood of the species occurring:

- Pilbara Olive Python (*Liasis olivaceus barroni*) – High;
- Northern Quoll (*Dasyurus hallucatus*) – High;
- Australian Bustard (*Ardeotis australis*) – High;
- Ghost Bat (*Macroderma gigas*) – High;
- Western Pebble-mound Mouse (*Pseudomys chapmani*) – High;
- White Egret (*Ardea alba*) – High;
- Fork-tailed Swift (*Apus pacificus*) – High;
- Bush Stone Curlew (*Burhinus grallarius*) – Moderate;
- Western Star Finch (*Neochmia ruficauda*) – Moderate;
- *Ramphotyphlops ganei* – Moderate;
- Pilbara Orange Leaf-nosed Bat (*Rhinonictis aurantius*) – Moderate;
- Crest-tailed Mulgara (*Dasyercus cristicauda*) – Low; and
- *Notoscincus butleri* – Low.

Some of these species are migratory, widely distributed or highly mobile and any animals displaced by the proposed clearing will be able to utilise similar habitat in the local area.

Astron (2011) recommended targeted surveys be conducted in any rocky breakaway, ridgeline and riparian habitats proposed for disturbance to determine the presence of high priority species such as the Ghost Bat, Northern Quoll, Pilbara Olive Python and Pilbara Leaf-nosed Bat. Given the low proportion of these habitat types compared to historically disturbed vegetation and low lying plains habitat (Astron, 2011), that most of the drilling will take place in areas already mined and cleared, and the relative small size of the proposed clearing compared to the size of the application area; targeted fauna surveys are not considered necessary at this stage. However, a targeted fauna survey may be required if there is potential for greater impact to these habitats which may be the case under a larger proposal.

The application area is likely to comprise significant habitat for fauna indigenous to Western Australia. However, the area proposed to be cleared is only 25 hectares of the larger 2,181 hectare application area.

Given that most of the drilling is anticipated to take place in areas already mined and historically cleared, and that there is already significant disturbance within the application area, the proposed clearing is less likely to disturb significant habitat for native fauna.

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

Methodology Astron (2011)
Department of Sustainability, Environment, Water, Population and Communities (2012a)
Department of Sustainability, Environment, Water, Population and Communities (2012b)
GIS Database:
- Threatened Fauna

(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 Declared Rare Flora (DRF) within the application area (GIS Database). The nearest record of DRF is located approximately 120 kilometres south-east of the application area (GIS Database).

Flora and vegetation surveys of the application area were conducted by an Astron botanist in June and September 2011. No DRF species were recorded during the surveys (Astron, 2011).

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

Methodology Astron (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**
A search of available databases revealed there are no known Threatened Ecological Communities (TECs) within the application area (GIS Database). The nearest recorded TEC, *Themeda* grasslands on cracking clays, is located approximately 83 kilometres south-east of the application area (GIS Database).

No TECs were identified during the flora and vegetation survey conducted by an Astron botanist (Astron, 2011).

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

Methodology Astron (2011)
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 clearing application area falls within the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion in which approximately 99.9% of the pre-European vegetation remains (see table) (Shepherd, 2009; GIS Database). This gives it a conservation status of 'Least Concern' according to the Bioregional Conservation Status of Ecological Vegetation Classes (Department of Natural Resources and Environment, 2002).

The vegetation of the clearing application area has been mapped as Beard vegetation associations:

173: Hummock grasslands, shrub steppe; kanji over soft spinifex and *Triodia wiseana* on basalt; and
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* on a lateritic crust (Shepherd, 2009; GIS Database).

According to Shepherd (2009), approximately 100% of these vegetation associations remain at a state and bioregional level. These vegetation associations would be given a conservation status of 'Least Concern' at both a state and bioregional level (Department of Natural Resources and Environment, 2002).

The vegetation under application is not a remnant of vegetation in an area that has been extensively cleared.

	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	~99.9	Least Concern	6.3
Beard Veg Assoc. – State					
173	1,421,376	1,421,376	~100	Least Concern	4.8
609	74,186	74,186	~100	Least Concern	
Beard Veg Assoc. – Bioregion					
173	1,420,793	1,420,793	~100	Least Concern	4.8
609	74,186	74,186	~100	Least Concern	

* Shepherd (2009)

** Department of Natural Resources and Environment (2002)

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

Methodology Department of Natural Resources and Environment (2002)
Shepherd (2009)
GIS Database
- IBRA WA (Regions - Sub Regions)
- 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

Part of the application area crosses the Robe River and several non-perennial watercourse associated with the Robe River are also within the application area (Astron, 2011; GIS Database). The Robe River pools water for many months following significant rainfall events (Astron, 2011).

A vegetation and flora survey undertaken by an Astron botanist identified six vegetation types within the application area that are associated with major creeklines: Ma01, Ma02, Ma03, Ma04, Ma05 and Ma06 (Astron, 2011). These vegetation types were in fair to excellent condition and the proposed clearing has the potential to cause degradation to these vegetation types (Astron, 2011). The proposed clearing activities will occur under the Rio Tinto Iron Ore Environmental Management System standards (Robe River Limited, 2011) and these generally aim to minimise the disturbance to watercourses where possible. The proportion of vegetation associated with major watercourses is low within the application area compared to vegetation mapped as previously disturbed or associated with the other landform types (Astron, 2011).

Based on the above, the proposed clearing is at variance to this Principle. However, given the amount of clearing (25 hectares) within a much larger application area (2,181 hectares) and the relatively low proportion of vegetation mapped as riparian vegetation, the disturbance to riparian vegetation is unlikely to be high.

Methodology Astron (2011)
Robe River Limited (2011)
GIS Database:
- Hydrography, Linear
- Hydrography, Linear (Hierachy)

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

Comments Proposal may be at variance to this Principle

According to available datasets the application area intersects the McKay, River, Robe and Rocklea Land Systems (GIS Database).

The McKay System is characterised by hills, ridges, plateaux remnants and breakaways of meta sedimentary and sedimentary rocks supporting hard spinifex grasslands (Van Vreeswyk et al., 2004). The system is not prone to degradation or soil 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). Susceptibility to erosion is high or very high if vegetation cover is removed (Van Vreeswyk et al., 2004).

The Robe Land System is characterised by low limonite mesas and buttes supporting soft spinifex (and occasionally hard spinifex) grasslands (Van Vreeswyk et al., 2004). The system is not generally susceptible to vegetation degradation or erosion (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 et al., 2004). Van Vreeswyk et al. (2004) report that this system has a very low erosion risk.

Robe River Limited has applied to clear up to 25 hectares of vegetation within a much larger application area (approximately 2,181 hectares) for exploration activities. The clearing does pose a degree of risk of land degradation, especially sedimentation near to the Robe River (Astron, 2011). However, given the relatively small size and nature of the proposed activities they are unlikely to cause large areas of appreciable land degradation. The proposed clearing activities are not likely to result in large areas of disturbed or open land and the raised blade clearing technique will be used where possible to ensure soil and rootstock are not removed (Robe River Limited, 2011). Potential impacts to land degradation in the longer term as a result of the proposed clearing may be minimised by the implementation of a rehabilitation condition.

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

Methodology Astron (2011)
Robe River Limited (2011)
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 conservation area is Millstream Chichester National Park, which is located approximately 47 kilometres east-north-east of the application area (GIS Database). At this distance the proposed clearing is unlikely to have an impact on the national park.

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 follows and includes a section of the Robe River, a significant watercourse within the Pilbara (Astron, 2011; GIS Database). The Robe River pools water for many months following large rainfall events and flows in a north-west direction until it discharges into the Indian Ocean near Robe Point (Astron, 2011). The application area also contains several minor non-perennial watercourses (Astron, 2011; GIS Database).

The soils associated with the River Land System along the Robe River are susceptible to a degree of erosion if cleared, therefore, there is potential for deterioration of surface water quality through increased sediment load (Van Vreeswyk et al., 2004). However, the amount of clearing is relatively small over a much larger application area so the amount of clearing along the Robe River is unlikely to be large. While there may be an increase in sedimentation in the short term, the amount of clearing proposed is unlikely to have long term impacts on surface or underground water.

According to the available databases the application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The nearest PDWSA is Millstream Water Reserve which is located approximately 25 kilometres east of the application area (GIS Database).

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

Methodology Astron (2011)
Van Vreeswyk et al. (2004)
GIS Database:
- Hydrography, Linear
- Public Drinking Water Source Areas (PDWSAs)

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

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

The application area is within Robe River catchment area in the Onslow Coast basin (GIS Database). Given the size of the area to be cleared (25 hectares) in relation to the size of the catchment area (757,138 hectares) (GIS Database), the proposed clearing is not likely to increase the potential of flooding on a local or catchment scale.

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

Methodology GIS Database:
- Hydrographic Catchments - Catchments

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

Comments

There is one Native Title Claim (WC99/12) over the area under application (GIS Database). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are multiple registered Aboriginal Sites of Significance in the vicinity of 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 21 November 2011 by the Department of Mines and Petroleum inviting submissions from the public. One submission was received stating there was no objection to the proposed clearing.

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

4. References

- Astron (2011) Middle Robe Valley Vegetation, Flora and Fauna Survey. Unpublished Report Prepared by Astron Environmental Services for Rio Tinto Iron Ore Ltd, June 2011.
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- DEC (2010) Priority Ecological Communities for Western Australia. Species and Communities Branch, Department of Environment and Conservation, December 2010.
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- Department of Sustainability, Environment, Water, Population and Communities (2012a) *Haliaeetus leucogaster* in Species Profile and Threats Database, Department of Sustainability, Environment, Water, Population and Communities, Canberra. <http://www.environment.gov.au/sprat> (Accessed 24 January 2012).
- Department of Sustainability, Environment, Water, Population and Communities (2012b) *Merops ornatus* in Species Profile and Threats Database, Department of Sustainability, Environment, Water, Population and Communities, Canberra. <http://www.environment.gov.au/sprat> (Accessed 24 January 2012).
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
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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.