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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4088/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Hamersley Iron Pty Ltd**

1.3. Property details

Property: *Iron Ore (Hamersley Range) Agreement 1963*, Special Lease for Mining Operations 3116/4984, Document I 195323 L, Lot 32 on Deposited Plan 47815.
Local Government Area: Shire of Roebourne
Colloquial name: Galah Siding

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
4.5		Mechanical Removal	Access tracks, borrow pits and rail maintenance

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 24 February 2011

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
Beard vegetation associations have been mapped for the whole of Western Australia and are useful to look at vegetation in a regional context. The following Beard vegetation association has been mapped within the application area (GIS Database): 587: Mosaic: Hummock grasslands, open low tree-steppe; snappygum over *Triodia wiseana* / Hummock grasslands, shrub-steppe; kanji over *Triodia pungens*. A flora and vegetation survey of the application area was conducted by Biota Environmental Sciences in May 2010. The following two vegetation communities were identified within the application area: 1. ChApyAbTw: *Corymbia hamersleyana* scattered low trees over *Acacia pyrifolia, Acacia bivenosa* scattered shrubs over *Triodia wiseana* hummock grassland; and 2. TERcAtrTwCE: *Terminalia canescens* low open woodland over *Acacia trachycarpa* tall open shrubland over *Triodia wiseana* open hummock grassland and **Cenchrus ciliaris, Cenchrus setiger* tussock grassland. There were also areas of the application area mapped as 'disturbed'.	Hamersley Iron Pty Ltd has applied to clear up to 4.5 hectares within an application area of 6.4 hectares (GIS Database). The application area is located approximately 55 kilometres south of Roebourne (GIS Database). The proposed clearing is for the construction of an access track, rail maintenance and a borrow pit.	Pristine: No obvious signs of disturbance (Keighery, 1994). to Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).	The vegetation condition was assessed by botanists from Biota Environmental Sciences. The vegetation condition was described using a scale based on Trudgen (1988) and has been converted to the corresponding condition from the Keighery (1994) scale.

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 flora and vegetation survey covering the application area recorded two different vegetation communities along with areas mapped as 'disturbed' (Biota Environmental Sciences, 2010). The vegetation condition

ranged from 'pristine' to 'degraded'. However, the large majority of the application area was mapped as 'disturbed' and was in degraded condition due to previous rail activities (Biota Environmental Sciences, 2010).

There has been no Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) recorded within the application area (Biota Environmental Sciences, 2010). The application area does fall within the buffer area of the Priority 3 PEC known as 'Five plant assemblages of the Wona Land System' (GIS Database). The application area is not located within the Wona land system so it is not likely that this PEC will be impacted by the proposed clearing.

A total of 223 native flora species from 111 genera and 42 families were recorded from a larger flora survey covering the application area and other rail sidings in the Millstream area (Biota Environmental Sciences, 2010). There were 78 species recorded within the application area itself (Biota Environmental Sciences, 2010). This number of species is within the expected range for a linear study area of this size in this locality, and is not considered to represent a particularly high species richness (Biota Environmental Sciences, 2010). There were no species of Declared Rare or Priority Flora recorded within the application area (Biota Environmental Sciences, 2010).

A desktop study identified a number of fauna species that may potentially be found within the application area (Biota Environmental Sciences, 2010). The application area has been largely disturbed and has existing rail infrastructure running through it. Given this, it is not expected to support a high level of faunal diversity.

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

Methodology Biota Environmental Sciecnes (2010)
GIS Database:
- Threatened Ecological Sites Buffered

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments **Proposal is not likely to be at variance to this Principle**
An assessment of fauna habitats was undertaken during the flora survey of the application area and other rail sidings in the Millstream area. There were four fauna habitats identified in the larger survey area (Biota Environmental Sciences, 2010):

- *Acacia* sp. open shrubland over Spinifex (*Triodia* sp.) hummock grassland on loamy plains;
- Mulga (*Acacia aneura*) woodland over tussock grassland on plains;
- Open mixed tussock grassland adjacent to creek line on cracking clay; and
- Sparse Bloodwood (*Corymbia* sp.) over scattered *Grevillea* sp. shrubland over Spinifex (*Triodia* sp.) hummock grassland on stones/cobbles.

These broad fauna habitats are ubiquitous within the Pilbara and are not going to be significantly impacted by the proposed clearing.

The majority of the application area is mapped as 'disturbed' and a number of introduced flora species have been recorded (Biota Environmental Sciences, 2010). The existing rail line that runs through the application area is also likely to act as a deterrent to fauna species. Whilst fauna may utilise the application area, it is not likely to represent significant habitat.

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

Methodology Biota Environmental Sciences (2010)

(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 records of Declared Rare Flora within the application area (GIS Database). A flora survey was conducted by Biota Environmental Sciences between 12 and 19 May 2010. This flora survey did not record any DRF (Biota Environmental Sciences, 2010).

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

Methodology Biota Environmental Sciences (2010)
GIS Database:
- Declared Rare and Prioirty Flora List

(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**
According to available databases, there are no records of Threatened Ecological Communities (TECs) within

the application area (GIS Database). A vegetation survey of the application area was conducted by Biota Environmental Sciences between 12 and 19 May 2010. No vegetation communities were identified as being a TEC (Biota Environmental Sciences, 2010).

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

Methodology Biota Environmental Sciences (2010)
GIS Database:
- Threatened Ecological Sites Buffered

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

Comments

Proposal is not at variance to this Principle

The application area falls within the Pilbara Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 99.9% of the Pre-European vegetation remains (see table) (GIS Database, Shepherd, 2009).

The vegetation of the application area has been mapped as the following Beard vegetation association (GIS Database):

587: Mosaic: Hummock grasslands, open low tree-steppe; snappygum over *Triodia wiseana* / Hummock grasslands, shrub-steppe; kanji over *Triodia pungens.*

According to Shepherd (2009) approximately 100% of this Beard vegetation association remains at both a state and bioregional level. Therefore, the area proposed to be cleared does not represent a significant remnant of native vegetation within 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	17,785,000	~99.9	Least Concern	6.3
Beard veg assoc. – State					
587	585,715	585,715	~100	Least Concern	20.97
Beard veg assoc. – Bioregion					
587	585,715	585,715	~100	Least Concern	20.97

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

Options to select from: Bioregional Conservation Status of Ecological Vegetation Classes (Department of Natural Resources and Environment 2002)

Presumed extinct	Probably no longer present in the bioregion
Endangered	<10% of pre-European extent remains
Vulnerable	10-30% of pre-European extent exists
Depleted	>30% and up to 50% of pre-European extent exists
Least concern	>50% pre-European extent exists and subject to little or no degradation over a majority of this area

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

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

There are several minor non-perennial watercourses within the application area (GIS Database). The vegetation unit TERcAtrTwCE has been identified as being associated with moderate-sized and minor drainage areas (Biota Environmental Sciences, 2010). Given this vegetation is associated with a watercourse, the proposed clearing is at variance to this Principle.

The vegetation unit TERcAtrTwCE was in 'good' condition due to invasion by *Cenchrus* species (Biota Environmental Sciences, 2010). This vegetation has been previously disturbed by existing railway infrastructure (GIS Database). As they currently have significant disturbances, the proposed clearing is not likely to cause significant additional impacts on the minor non-perennial watercourses within the application area.

Methodology Biota Environmental Sciences (2010)
GIS Database:
- Cooya Pooya 1.4m Orthomoaic – Landgate 1998
- 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 has been mapped as occurring on the Rocklea land system (GIS Database). This land system has a very low erosion hazard (Van Vreeswyk et al., 2004). The application area is relatively flat and the soils are generally shallow and stony not and overly susceptible to erosion following disturbance (Northcote et al., 1960; GIS Database).

At a broad scale the surface soil pH of the application area is 5.5 to 6.0 and there is no known occurrence of acid sulphate soils (CSIRO, 2009). The average annual evaporation rate is over 8 times the annual average rainfall so there is a low probability of the proposed clearing causing increased groundwater recharge resulting in rising saline water tables (GIS Database).

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

Methodology CSIRO (2009)
Northcote et al. (1960-68)
Van Vreeswyk et al. (2004)
GIS Database:
- Evaporation Isopleths
- Rainfall, Mean Annual
- Rangeland, Land System Mapping
- Soils, Statewide

(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 does not lie within any conservation area or DEC managed lands (GIS Database). However, the application area is located within the infrastructure corridor of Millstream-Chichester National Park and has the National Park abutting its western boundary. Given the majority of the application area is mapped as 'disturbed', the proposed clearing is not likely to have a significant impact on the environmental values of the adjacent National Park.

It has been previously identified that the main impact to the National Park from activities within the infrastructure corridor is the potential to increase the spread and levels of alien species (CALM, 2006). Potential impacts from weed species may be mitigated by the successful implementation of a weed management condition.

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

Methodology CALM (2006)
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 lies within a Public Drinking Water Supply Area (PDWSA) (GIS Database). In particular it is within the Harding Dam Catchment Area. The Harding Dam Catchment area is a Priority 1 PDWSA (GIS Database). The Department of Water has stated (Department of Water, 2011):

"The Department of Water opposes the creation or expansion of infrastructure corridors within P1 protection areas, as they are incompatible with our policy of risk avoidance. Corridors may occasionally be approved with conditions, where it is demonstrated that alternative siting is impractical and the corridor is vital to the state's interests."

The proposed clearing is for the construction of an access track and associated borrow pit. This is for the

maintenance of the existing rail infrastructure and will not involve the construction of a new siding (Hamersley Iron Pty Ltd, 2011).

There are several minor non-perennial watercourses present within the application area (GIS Database). Given these watercourses have been previously disturbed by rail activities, the proposed clearing is not expected to have any significant additional impacts on surface water quality in the local area.

The groundwater within the application area is between 500 – 1,000 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database). This is considered to be potable water. Given the majority of the application area has been mapped as 'disturbed', the proposed clearing is not expected to cause salinity levels within the local area to alter.

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

Methodology

Department of Water (2011)
Hamersley Iron Pty Ltd (2011)
GIS Database:
- Groundwater Salinity, Statewide
- Hydrography, linear
- Public Drinking Water Supply 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

With an average annual rainfall of 400 millimetres and an average annual evaporation rate of 3,400 millimetres there is likely to be little surface flow during normal seasonal rains (GIS Database). Whilst large rainfall events may result in the 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

GIS Database:
- Evaporation Isopleths
- Rainfall, Mean Annual

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

Comments

There is one native title claim over the area under application (GIS Database). This claim (WC99/14) has been registered with the National Native Title Tribunal on behalf of the claimant group (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*.

According to available databases, there is one registered Aboriginal Site of Significance within the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment and Conservation and the Department of Water to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

The clearing permit application was advertised on 20 December 2010 by the Department of Mines and Petroleum inviting submissions from the public. There was one submission received stating no objection to the proposed clearing.

Methodology

GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims - Determined

4. References

Biota Environmental Sciences (2010) Galah, Gull, Ibis-Koala and rosella Rail Sidings Native Vegetation Clearing Permit Report. Unpublished report for Rio Tinto Iron Ore, August 2010.

CALM (2006) Land clearing proposal advice. Email Advice provided on 23 January 2006 to Native Vegetation Assessor,Department of Industry and Resources (DoIR) (now Depatment of Mines and Petroleum). Department of Conservation and Land Management, Western Australia.

Commonwealth Scientific and Industrial Research Organisation (2009) Australian Soil Resource Information System. Available online at: http://www.asris.csiro.au/index_ie.html Accessed on 17 January 2011.

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 Water (2011) Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Mines and Petroleum (DMP), 6 January 2011. Department of Water, western Australia.

Hamersley Iron (2011) Email to Assessing Officer, Native Vegetation Assessment Branch, Department of Mines and Petroleum (DMP) on 15 February 2011.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.

Shepherd, D.P. (2009) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.

Trudgen M.E. (1988) A Report on the Flora and Vegetation of the Port Kennedy Area. Unpublished report prepared for Bowman Bishaw and Associates, West Perth.

Van Vreeswyk, A.M, Payne, A.L, Leighton, K.A & Hennig, P (2004) Technical Bulletin No. 92: An inventory and condition survey of the Pilbara region, Western Australia. Department of Agriculture, South Perth, Western Australia.

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.