Government of Western Australia
Department of Mines and Petroleum

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4003/1
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 Act 1963*, Mineral Lease 4SA (AML 70/4)
Local Government Area: Shire of Ashburton
Colloquial name: Brockman 2 Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
10.7		Mechanical Removal	Road construction or maintenance

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 9 December 2010

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 at a 1:250,000 scale for the whole of Western Australia. One Beard vegetation association has been mapped within the application area (GIS Database; Shepherd, 2007).

82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana* (GIS Database; Shepherd, 2007).

The application area was surveyed by Biota Environmental Sciences on 27 April - 6 May 2010 (Biota, 2010a). The following vegetation types were identified within the application area:

ChElAhAbAprTe: *Corymbia hamersleyana, Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees to low open woodland over *Acacia hamersleyensis*, *Acacia bivenosa*, *Acacia pruinocarpa* scattered shrubs to open shrubland over *Triodia epactia* hummock grassland; and

ChElAmoGOrTeCYaTHmTHt: *Corymbia hamersleyana*, *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Acacia monticola*, *Gossypium robinsonii* tall open shrubland over *Triodia epactia* hummock grassland with *Cymbopogon ambiguous*, *Themeda* sp. Mt Barricade, *Triodia triandra* tussock grassland (Biota 2010a).

Clearing Description

Hamersley Iron Pty Ltd is proposing to clear up to 10.7 hectares of native vegetation for the construction of a land bridge/haul road.

Vegetation will be cleared using a blade down technique and will be stockpiled and used for rehabilitation (Hamersley Iron Pty Ltd, 2010).

Vegetation Condition

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

To

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

Comment

The application area is located in the Pilbara region of Western Australia and is situated approximately 51 kilometres north-west of Tom Price (GIS Database).

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments

Proposal is not likely to be at variance to this Principle

The application area occurs within the Hamersley (PIL3) sub-region of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This sub-region is characterised by sedimentary ranges and plateaux, dissected by gorges (CALM, 2002). At a broad scale, vegetation can be described as Mulga low woodlands over bunch grasses on fine textured soils in valley floors and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils of the ranges (CALM, 2002).

A vegetation survey of the application area identified 2 intact vegetation communities (Biota 2010a). During the vegetation survey, 24 vascular plant taxa from 19 genera and 15 families were recorded within the application area (Biota 2010a). This is not considered to be diverse, however a low intensity vegetation survey makes it difficult to ascertain the true biological diversity within the application area. The application area is located adjacent to the existing Brockman mine site and the scale and nature of the clearing is not likely to result in a significant reduction in biodiversity.

One Priority flora species, *Sida* sp. Barlee Range (S.van Leeuwen 1642) (P3), has previously been recorded within the application area (Biota, 2010a). The presence of Priority Flora within the proposed clearing area increases its biodiversity significance. According to Shepherd (2007) approximately 100% of the Beard vegetation association within the application area remains within the Pilbara bioregion. Given the extent of native vegetation remaining in the local area and bioregion and the relatively small size of the application area it is unlikely that clearing will threaten the conservation status of any Priority Flora species (GIS Database). Additionally, it is unlikely that the proposed clearing will adversely affect biodiversity within this association or within the local area.

A search by the assessing officer of DEC's Naturemap revealed records of 1 amphibian, 64 reptiles, 133 birds and 19 mammals within an approximate 20 kilometre radius of the application area (DEC, 2010). While this is considered to be diverse, the size of the application area and its close proximity to heavily disturbed areas renders the proposed clearing unlikely to affect the diversity within the local area.

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

Methodology

Biota (2010a)
CALM (2002)
DEC (2010)
Shepherd (2007)
GIS Database:
- Declared Rare and Priority Flora List
- IBRA WA (Regions - Sub Regions)
- Pre-European Vegetation

(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

According to Shepherd (2007) approximately 99.95% of the pre-European vegetation remains within the Pilbara bioregion (GIS Database). Given the extent of native vegetation remaining in the local area and bioregion, the vegetation to be cleared does not represent a significant ecological linkage.

In 2010, a level 1 (EPA, 2004) fauna survey of the Brockman 2 areas adjacent to the application area was conducted by Biota (2010b).

From this survey it can be inferred that two broad habitat types occur within the application area:

1. Gorges - Scattered *Corymbia* sp. and *Astrtotricha hamptonii* over *Triodia* on rocky surfaces; and
2. Gorge, Breakaway and Debris Slope - Scattered *Eucalyptus* sp. over mixed Acacias over *Triodia* on rocky surfaces.

The fauna habitat within the application area is considered to be suitable habitat for the Northern Quoll, listed as Endangered under the *Environmental Protection and Biodiversity Conservation (EPBC) Act 1999*, and the Pilbara Olive Python, listed as Vulnerable under the *EPBC Act 1999*. However, aerial imagery demonstrates that the application area is located adjacent to existing mining operations (Biota, 2010a). The disturbances that have occurred around the proposal area are likely to have reduced the habitat value of the vegetation within the application area, as well as adversely impacted on any fauna corridors or linkages to higher quality vegetation north or east of the application area. Additionally, the aerial imagery demonstrates similar, less degraded, habitat types are likely to occur to the south of the application area.

The scale and nature of the clearing proposal, along with the broad distributions of these fauna species, render it highly unlikely to result in a loss of significant habitat for fauna indigenous to Western Australia.

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

Methodology Biota (2010a)
Biota (2010b)
EPA (2004)
Shepherd (2007)
GIS Database:
- Pre-European Vegetation
- IBRA WA (Regions - Sub Regions)

(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 GIS databases there are no known records of Declared Rare Flora (DRF) within the application area (GIS database).

A flora survey was conducted by Biota Environmental Sciences during April and May 2010 (Biota, 2010a). No DRF plant taxa were recorded within the application area (Biota, 2010a).

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

Methodology Biota (2010a)
GIS Database:
- Declared Rare and Priority 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 GIS databases there are no known records of Threatened Ecological Communities (TECs) within the application area (GIS database).

The nearest TEC, Themeda grasslands on cracking clay, is approximately 2.5 kilometres east of the application area. Due to the small size of the application area it is unlikely to have an impact on the known TEC.

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

Methodology GIS Database:
- Threatened Ecological Sites Buffered

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

Comments **Proposal is not at variance to this Principle**
The application area is located within the Pilbara bioregion of the Interim Biogeographical Regionalisation for Australia (IBRA) (GIS Database). Shepherd (2007) reports that approximately 99.5% of the pre-European vegetation remains in the state and in the Pilbara region.

The vegetation in the application area is broadly mapped as Beard vegetation association 82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana* (GIS Database; Shepherd, 2007). According to Shepherd (2007) approximately 100% of the Beard association 82 remains within the Pilbara bioregion (see table below).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Pilbara	17,804,188	17,794,647	~99.5	Least Concern	~6.32
Beard vegetation associations - State					
82	2,565,901	2,565,901	~100	Least Concern	~10.2
Beard vegetation associations - Bioregion					
82	2,563,583	2,563,583	~100	Least Concern	~10.2

* Shepherd (2007)
** 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 (2007)
GIS Database:
- IBRA WA (regions - subregions)
- Pre-European Vegetation

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments **Proposal is not likely to be at variance to this Principle**
According to available GIS Databases, there are no permanent wetlands or watercourses within the application area (GIS Database). Whilst there are numerous minor, non-perennial watercourses which intersect the application area, no watercourse associated vegetation communities were defined in the vegetation survey conducted by Biota (2010a).

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

Methodology Biota (2010a)
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 has been surveyed by the Department of Agriculture and Food (Van Vreeswyk et al., 2004), and lies within the Newman land system (GIS Database).

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

Based on the above, the proposed clearing is not likely to be at variance to this Principle. Potential land degradation impacts as a result of the proposed clearing may be minimised by the implementation of a rehabilitation condition.

Methodology Van Vreeswyk et al (2004)
GIS Database:
- Rangeland Land System Mapping

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Comments **Proposal is not likely to be at variance to this Principle**
The proposed clearing is not located within a conservation reserve (GIS Database). The nearest known conservation reserve is Karajini National Park, located approximately 60 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 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

According to available databases, the application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database).

The application area is located within a *Rights in Water and Irrigation Act 1914 (RIWI Act)* Groundwater Management Area (GIS Database). The proponent is required to obtain permits to abstract groundwater in this area.

The groundwater salinity within the application area is approximately 500 - 1,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). This is considered to be potable water. Given the size of the area to be cleared (10.7 hectares) compared to the size of the Hamersley Groundwater Province (10,166,833 hectares) (GIS Database), the proposed clearing is not likely to cause salinity levels within the application area to alter significantly.

The application area is located in a semi-desert-tropical region, with an average annual rainfall of approximately 399.4 millimetres recorded from the nearest weather station at Tom Price approximately 51 kilometres south-east of the application area (BoM, 2010; CALM, 2002). The size of the proposed clearing area within the above climate is unlikely to result in significant changes to surface water flows.

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

Methodology BoM (2010)
CALM (2002)
GIS Database:
- Groundwater - Provinces
- Groundwater Salinity
- Public Drinking Water Source Areas (PDWSA)
- RIWI Act, Groundwater Areas

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

Comments

Proposal is not likely to be at variance to this Principle

The application area experiences a semi-desert, tropical climate with an average annual rainfall of 399.4 millimetres recorded from the nearest weather station at Tom Price approximately 51 kilometres south-east of the application area (CALM, 2002; BoM, 2010).

Rainfall is usually experienced during summer months and can be either cyclonic or thunderstorm events (CALM, 2002). It is likely that during times of intense rainfall there may be some localised flooding in adjacent areas. Local flooding occurs seasonally within the Pilbara region as a result of cyclonic activity and sporadic thunderstorm events. The small size of the proposed clearing (10.7 hectares) is unlikely to significantly alter the intensity of flooding within the application area and surrounding areas.

The application area is located within the Ashburton River catchment area (GIS Database). However, the size of the area to be cleared (10.7 hectares) in relation to the size of the Ashburton River catchment area (7,877,743 hectares) (GIS Database) is not likely to increase the potential for flooding within the application area, local area or within the catchment (GIS Database).

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

Methodology BoM (2010)
CALM (2002)
GIS Database:
- Hydrographic Catchments - Catchments

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

Comments

There is one Native Title Claim over the area under application (WC97/089). 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 five registered Aboriginal Sites 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 purpose of works.

The clearing permit application was advertised on 11 October 2010 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received in relation to the proposed clearing.

Methodology

GIS Database
- Aboriginal Sites of Significance
- Native Titles Determined

4. References

Biota (2010a) Brockman Syncline 2 Sustaining Tonnes Project and Pit 7 Land Bridge Vegetation and Flora Survey. Unpublished report prepared for Rio Tinto Iron Ore, August 2010.

Biota (2010b) Brockman 2 Sustaining Tonnes Targeted Fauna Survey. Unpublished report prepared for Hamersley Iron Pty Ltd, June 2010.

BoM (2010) BOM Website - Climate Averages by Number, Averages for TOM PIRCE. www.bom.gov.au/climate/averages/tables/cw_007151.shtml (Accessed 25 October 2010).

Department of Conservation and Land Management (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions.

DEC (2010) NatureMap: Mapping Western Australia's Biodiversity. Department of environment and Conservation. URL: http://naturemap.dec.wa.gov.au/. Accessed 9 November 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.

EPA (2004) Guidance for the Assessment of Environmental Factors: Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia. Guidance Statement No 56. Environmental Protection Authority, Western Australia.

Hamersley Iron Pty Ltd (2010) Application for a Clearing Permit (Purpose Permit) Construction of new Landbridge/Haul Road. Supporting documentation prepared Hamersley Iron Pty Ltd. September 2010.

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

Shepherd, D.P. (2007) 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.

Van Vreeswyk, A.M.E., Payne, A.L., Hennig, P., and Leighton, K.A. (2004) An Inventory and Condition Survey of the Pilbara Region, Western Australia, Department of Agriculture, 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.