Government of Western Australia
Department of Mines and Petroleum

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4771/1
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 4 Drilling Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
50		Mechanical Removal	Mineral Exploration and Access Tracks

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 9 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 (GIS Database; Shepherd, 2009):

18: Low woodland; mulga (*Acacia aneura*); and
82: Hummock grassland, low tree steppe; snappy gum over *Triodia wiseana*.

A flora and vegetation survey of the application area was conducted in October 2004 by Biota Environmental Sciences (Biota) (2005a). This survey identified the following 13 vegetation communities within the application area (Biota, 2005a):

Drainage
C11 - *Acacia citrinoviridis*, *Acacia ancistrocarpa* tall open shrubland to tall closed scrub over *Triodia epactia* mid-dense hummock grassland;

C16 - *Corymbia hamersleyana* scattered low trees over *Acacia bivenosa*, *Petalostylis labicheoides* shrubland over *Triodia epactia* hummock grassland; and

C21 - *Petalostylis labicheoides* shrubland over *Triodia epactia* mid-dense hummock grassland.

Plains
P3 - *Eucalyptus leucophloia* scattered low trees over *Acacia aneura* (various forms), *Acacia ayersiana* tall open shrubland over *Triodia epactia, Triodia wiseana* mid-dense hummock grassland;

P4 - *Acacia xiphophylla, Acacia aneura* (flat curved; MET 15,548) low woodland to tall open shrubland over *Eremophila cuneifolia, Rhagodia eremaea* low open shrubland over *Triodia wiseana* open to mid-dense hummock grassland;

P6 - *Corymbia deserticola* scattered low trees over *Acacia atkinsiana, Acacia exilis* tall open shrubland over *Triodia wiseana* closed hummock grassland; and

P15 - *Acacia bivenosa, Acacia exilis, Acacia ancistrocarpa* open shrubland over *Triodia wiseana* mid-dense hummock grassland.

Stony Hills
H2 - *Eucalyptus leucophloia* scattered low trees over *Acacia atkinsiana* open shrubland over *Triodia*

wiseana mid-dense hummock grassland;

H3 - *Eucalyptus leucophloia* scattered low trees over *Acacia maitlandii* shrubland to open heath over *Triodia wiseana* mid-dense hummock grassland;

H9 - *Eucalyptus leucophloia* scattered low trees over *Acacia inaequilatera* tall shrubland over *Triodia wiseana* mid-dense hummock grassland;

H10 - *Eucalyptus leucophloia* low open woodland over *Acacia bivenosa* open shrubland over *Triodia brizoides*, *Triodia epactia* hummock grassland and *Themeda* sp. Mt. Barricade, *Cymbopogon ambiguus* open tussock grassland;

H13 - *Corymbia ferriticola, Eucalyptus leucophloia scattered* low trees over *Acacia hamersleyensis* scattered tall shrubs over *Dodonaea pachyneura* open shrubland; and

H14 - *Eucalyptus leucophloia* scattered low trees over *Triodia wiseana* mid-dense hummock grassland.

Clearing Description

Hamersley Iron Pty Ltd is proposing to clear up to 50 hectares of native vegetation within a broader boundary of approximately 404 hectares for the purpose of mineral exploration and access tracks.

Clearing will be conducted using blade down techniques where practicable or scrub rake in level terrain. Where previously cleared tracks require maintenance, the track may be graded using blade down techniques.

Vegetation Condition

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

Comment

The application area is located within the Pilbara region of Western Australia and is situated approximately 60 kilometres west of Tom Price.

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 proposed clearing is located approximately 60 kilometres west of Tom Price in the Hamersley subregion of the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). 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). Rare features of the subregion include gorges of the Hamersley Ranges (particularly those within Karijini National Park), Palm Spring, Duck Creek and Themeda grasslands (CALM, 2002). Permanent spring systems such as Weeli Wolli are also listed for their importance as refugia (CALM, 2002).

A flora and vegetation survey of the application area was conducted by Biota (2005a) in October 2004. This survey identified 13 vegetation communities within the application area, none of which are considered have unique or particularly high diversity (Rio Tinto, 2011).

According to available databases there are no Threatened Ecological Communities (TEC) or Priority Ecological Communities (PEC) within the application area (GIS Database).

Declared Rare Flora (DRF) searches were conducted over the application area by botanists from Hamersley Iron and Biota (2005a) between February and June 2003. No DRF or Priority Flora species were recorded within or in close proximity to the application area during these searches (Rio Tinto, 2011).

A flora and vegetation survey conducted by Biota (2005a) identified six weed species, *Acetosa vesicaria, Bidens bipinnata, Cenchrus ciliaris, Cenchrus setigerus, Malvastrum americanum* and *Setaria verticillata*, within and adjacent to the application area. Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. This can in turn lead to greater rates of infestation and further loss of biodiversity if the area is subject to repeated fires. None of these species are listed as 'Declared Plant' species under the *Agriculture and Related Resources Protection Act 1976* by the Department of Agriculture and Food. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

A fauna survey of the application area and the surrounding areas was conducted by Biota (2005b) in October 2004. This survey recorded a total of 123 fauna taxa comprised of 49 reptile, 57 bird, seven bat, eight non-volant mammal and two amphibian species. This is considered to be typical for the Hamersley subregion and does not appear to be especially significant (Biota, 2005b).

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

Methodology Biota (2005a)
Biota (2005b)
CALM (2002)
Rio Tinto (2011)
GIS Database:
- IBRA WA (regions – subregions)
- Threatened Ecological Sites Buffered
- Threatened and Priority Flora

(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**
A fauna survey of the application area and the surrounding areas was conducted by Biota (2005b) in October 2004. This survey recorded a total of 123 fauna taxa comprised of 49 reptile, 57 bird, seven bat, eight non-volant mammal and two amphibian species. This is considered to be typical for the Hamersley subregion and does not appear to be especially significant (Biota, 2005b).

Two conservation significant fauna species were recorded within the Biota (2005b) survey area:

- Australian Bustard (*Ardeotis australis*) Priority 4 – highly mobile species which occurs throughout Australia. The low impact, non-contiguous nature of the proposed clearing is unlikely to impact on the conservation of this species; and

- *Notoscincus butleri* Priority 4 – recorded within the Boolgeeda Creek which is not within the application area.

A further three conservation significant species were considered likely to occur within the application area where suitable habitat is present (Rio Tinto, 2011):

- Pilbara Olive Python (*Liasis olivaceus*) Schedule 1, Vulnerable;
- Peregrine Falcon (*Falco peregrinus*) Schedule 1; and
- Western Pebble-mound Mouse (*Pseudomys chapmani*) Priority 4.

While some potential habitat loss or potential direct mortality may occur, the conservation of these species is considered unlikely to be impacted by the proposed clearing.

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

Methodology Biota (2005b)
Rio Tinto (2011)

(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**
There are no known records of Declared Rare Flora (DRF) within the application area (GIS Database). A flora and vegetation survey conducted over the application area by Biota (2005a) did not identify any DRF.

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

Methodology Biota (2005a)
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**
There are no known records of Threatened Ecological Communities (TEC's) within the application area (GIS Database). The nearest known TEC is approximately 26 kilometres west north-west of the application area (GIS Database). At this distance there is little likelihood of any impact to the TEC as a result of the proposed clearing.

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 Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). Shepherd (2009) reports that approximately 99.89% of the pre-European vegetation remains within the Pilbara bioregion.

The vegetation in the application area has been broadly mapped as Beard vegetation associations:

18: Low woodland; mulga (*Acacia aneura*);and
82: Hummock grassland, low tree steppe; snappy gum over *Triodia wiseana*.

According to Shepherd (2009) approximately 100% of Beard vegetation associations 18 and 82 remain 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	17,804,193	17,785,001	~99.89	Least Concern	~6.32
Beard vegetation associations - State					
18	19,892,305	19,890,275	~99.99	Least Concern	~2.13
82	2,565,901	2,565,901	~100	Least Concern	~10.4
Beard vegetation associations - Bioregion					
18	676,557	676,557	~100	Least Concern	~16.8
82	2,563,583	2,563,583	~100	Least Concern	~10.25

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

The vegetation within the application area is not considered to be a remnant of native vegetation in an area that has been extensively cleared.

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 – 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 databases, there are no permanent wetlands of watercourses within application area, however there are numerous ephemeral watercourses (GIS Database). A flora survey of the application area conducted by Biota (2005a) identified three vegetation communities growing in association with ephemeral watercourses.

Minor ephemeral watercourses are common within the Pilbara and the vegetation growing in association with the ephemeral watercourses within the application area is not considered to be significant.

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

Methodology

Biota (2005a)
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 intersects one land system, Newman (GIS Database). This land system is characterised by rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands and is largely erosion resistant (Van Vreeswyk et al., 2004).

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

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 conservation reserve is Karijini National Park, located approximately 40 kilometres east of the application area (GIS Database). At this distance it is unlikely that the proposed clearing will impact on the environmental values of any conservation areas.

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 is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The nearest PDWSA is the Millstream Water Reserve, approximately 40 kilometres north east of the application area (GIS Database). At this distance it is unlikely that the proposed clearing will impact on the water quality of the Millstream Water Reserve.

The groundwater salinity within the application area is between 500 – 1,000 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database). Given the low impact, non contiguous nature, the proposed clearing is not likely to alter the salinity levels within the application area.

There are no permanent wetlands or watercourses within the application area (GIS Database). It is therefore considered unlikely that the proposed clearing will impact on the quality of any surface water.

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

Methodology

GIS Database:
- Goundwater Salinity, Statewide
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSA)

(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 approximately 319 millimetres recorded at Paraburdoo Aero weather station approximately 55 kilometres south of the application area (BoM, 2012; CALM, 2002). The majority of rainfall in this area usually falls in summer cyclonic and thunderstorm events (CALM, 2002). Large runoff as well as localised and regional flooding can occur following intense rainfall events and, given its non contiguous nature, it is considered unlikely that the proposed clearing will cause or exacerbate the incidence or intensity of flooding.

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

Methodology

BoM (2012)
CALM (2002)

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

Comments

There is one Native Title Claim (WC01/5) over the area under application (GIS Database). This claim has been registered with the 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 no 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 2 January 2012 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 Title Claims – Registered with the NNTT

4. References

Biota (2005a) A Vegetation and Flora Survey of the Brockman Syncline 4 Project Area, Near Tom Price. Unpublished Report Prepared for Hamersley Iron Pty Ltd dated July 2005. Biota Environmental Sciences.

Biota (2005b) Fauna Habitats and Fauna Assemblages of the Brockman No. 4 Project Area. Baseline Fauna Survey Report Prepared for Hamersley Iron Pty Ltd dated January 2005. Biota Environmental Sciences.

BoM (2012) BoM Website - Climate Averages by Number, Averages for PARABURDOO AERO. www.bom.gov.au/climate/averages/tables.shtml (Accessed 31 January 2012)

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

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.

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

Rio Tinto (2011) Statement Addressing the 10 Clearing Principles Brockman 4 Pits 6,7,8,10 & 20 Drilling Programme. Unpublished report dated November 2011.

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.

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.