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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3241/1
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: Tom Price Mine

1.4. Application

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

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description
Vegetation within the application area has been mapped at a 1:250,000 scale as the following Beard Vegetation Association (GIS Database; Shepherd, 2007):

82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*.

Pilbara Flora undertook a vegetation survey of the Tom Price mine area in April and May 2008. The following vegetation units were identified within the application area (Pilbara Flora, 2008):

- Steep Hillsides Open Woodland;

- Rocky Hillsides Dense Shrubland;

- Rocky Hillsides Acacia Woodland;

- Deep Incised Valley Shrubland; and

- Heavily Disturbed areas.

Clearing Description
Hamersley Iron has applied to clear up to 1.8 hectares within an application area of approximately 1.8 hectares for the purpose of mineral production (GIS Database). The proposal is for the extension of an existing pit. Clearing will be by mechanical means.

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 botanists from Pilbara Flora. The vegetation conditions were described using a scale based on Trudgen (1988) and have been converted to the corresponding conditions 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 application area occurs within the Hamersley (PIL3) Interim Biogeographic Regionalisation of Australia (IBRA) subregion (GIS Database). At a broad scale vegetation can be 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). The vegetation within the application area has been mapped as Beard Vegetation Association 82 which is common and widespread throughout the bioregion, with approximately 100% of the Pre-European extent remaining (GIS Database; Shepherd, 2007).

A flora and vegetation survey was undertaken over the application area and identified four vegetation types along with heavily disturbed areas (Rio Tinto Iron Ore, 2009). These vegetation types ranged from 'excellent' to the disturbed areas being 'completely degraded'. There are no records of Declared Rare Flora, Priority Flora or Threatened Ecological Communities within the application area The application area is adjacent to existing mining operations and is not likely to comprise a higher level of diversity than surrounding areas.

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

Methodology CALM (2002)
Rio Tinto Iron Ore (2009)
Shepherd (2007)

(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**
No fauna surveys have been conducted over the application area. A desktop review for fauna species of conservation significance was conducted by Pilbara Flora (2008).

There is one potentially significant habitat feature within the application area, which is a wide, deep, steep-walled rocky valley (Pilbara Flora, 2008). This landscape unit is considered as being common and widespread throughout the Pilbara (Pilbara Flora, 2008).

The vegetation within the application area has been classified as ranging from 'excellent' to 'completely degraded'. Aerial imagery shows that the application area is situated adjacent to an existing pit which may act as a deterrent for fauna species.

There is the potential for several species of conservation significance to be found within the application area (Pilbara Flora, 2008). However, given that the habitat features within the application area are considered common in the Pilbara and the proximity of the application area to an existing mine site, the proposed clearing is not likely to represent significant habitat for indigenous fauna.

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

Methodology Pilbara Flora (2008)

(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 recorded Declared Rare Flora (DRF) or Priority Flora species within the application area (GIS Database). Pilbara Flora conducted a flora survey over the application area during April and May 2008. No DRF or Priority Flora was recorded within the application area (Pilbara Flora, 2008).

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

Methodology Pilbara Flora (2008)
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 databases, there are no Threatened Ecological Communities (TEC's) within the application area (GIS Database). No vegetation communities described as a TEC were recorded during the botanical survey of the application area (Pilbara Flora, 2008). The nearest known TEC is located approximately 40 kilometres north-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 Pilbara Flora (2008)
GIS Database
- Threatened Ecological Communities

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

Comments **Proposal is not at variance to this Principle**
The application area falls within the Pilbara Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 99.9% of the Pre-European vegetation remains (see table) (GIS Database; Shepherd, 2007).

The vegetation of the application area has been mapped as Beard Vegetation Association 82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana* (Shepherd, 2007).

According to Shepherd (2007) approximately 100% of Beard Vegetation Association 82 remains at both a state and bioregional level. Therefore the area proposed to clear does not represent a significant remant of native

vegetation within an area that has been extensively cleared.

While a small percentage of vegetation types within the Pilbara bioregion are protected within conservation reserves, the bioregion remains largely uncleared. As a result the conservation of vegetation associations within the bioregion is not likely to be impacted by this proposal.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves (and post clearing %)*
IBRA Bioregion – Pilbara	17,804,187	17,794,646	~99.9	Least Concern	6.3 (6.3)
Beard veg assoc. – State					
82	2,565,901	2,565,901	~100	Least Concern	10.2 (10.2)
Beard veg assoc. – Bioregion					
82	2,563,583	2,563,583	~100	Least Concern	10.2 (10.2)

* Shepherd (2007)
** 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 (2007)
GIS Database
- Interim Biogeographic Regionalisation of Australia
- 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**
According to available databases, the application area contains several ephemeral drainage lines (GIS Database). The botanical survey did not identify any vegetation types associated with a watercourse within the application area (Pilbara Flora, 2008).

Given the application area includes ephemeral drainage lines, the proposed clearing is at variance with this Principle.

These ephemeral watercourses only flow following heavy rainfall events and are dry for the majority of the year. None of the vegetation within the application area has been identified as riparian (Pilbara Flora, 2008). An analysis of aerial photography revealed that the ephemeral watercourses have been disturbed by existing tracks, and in some areas outside the application area have been heavily disturbed by existing mining operations (GIS Database). Therefore, the proposed clearing within the application area is not likely to have a significant effect on any watercourses.

Methodology Pilbara Flora (2008)
GIS Database
- Hydrography, linear
- Mount Lionel 50cm Orthomosaic – Landgate 2004 (image)

(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**
According to available databases, the application area is comprised of the Newman land system (GIS Database). The Newman land system is characterised by rugged jaspilite plateaux, ridges and mountains

supporting hard spinifex grasslands (Payne et al., 1988). The Newman land system has a nil to minor erosion potential (Van Vreeswyk et al., 2004).

The soil pH in the application area is 5.5 to 6.0 and there is a low probability of acid sulphate soil occurrence (CSIRO, 2009). The average annual evaporation rate is over 8 times the average annual rainfall, so it is unlikely the proposed clearing will result in increased groundwater recharge causing raised 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)
Payne et al. (1988)
Van Vreeswyk et al. (2004)
GIS Database
- Evaporation Isopleths
- Rainfall, Mean Annual

(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

According to available databases, the application area is not located within a conservation area or any DEC managed lands (GIS Database). The nearest conservation reserve is Karijini National Park located approximately 17.5 kilometres east of the application area (GIS Database). Based on the distance between the proposed clearing and the nearest conservation area, the project is not likely to impact on the environmental values of any conservation area.

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

Methodology
GIS Database
- CALM Managed Landsand Waters

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Comments

Proposal is not likely to be at variance to this Principle

According to available databases, the application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). There are no permanent waterbodies or watercourses within the application area (GIS Database).

Rainfall in the area is mainly restricted to a wet summer season, where precipitation can be variable (BoM, 2009). Rain can be either intense falls associated with cyclonic events or scattered falls associated with local thunderstorms (Van Vreeswyk et al., 2004). The average annual evaporation rate for the application area is 3,400 millimetres and the average annual rainfall is 400 millimetres (GIS Database). Therefore, during normal rainfall events surface water in the application area is likely to evaporate quickly. However, substantial rainfall events create surface sheet flow which is likely to have a higher level of sediments. During normal rainfall events, the proposed clearing would not likely lead to an increase in sedimentation of watercourses within the application area.

The groundwater salinity within the application area is between 500 – 1000 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database). This is considered to be potable water. Given the small scale of the proposed clearing (1.8 hectares), it is not likely to cause salinity levels within the application area to alter (GIS Database).

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

Methodology
BoM (2009)
Van Vreeswyk et al. (2004)
GIS Database
- Evaporation Isopleths
- Groundwater Salinity, Statewide
- Public Drinking Water Source Areas (PDWSA's)
- Rainfall, Mean Annual

(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 receives most of its rainfall during the wet summer season, but falls can be variable (BoM, 2009). Rain can either be sporadic (local thunderstorms) or heavy and intense (cyclonic events). It is likely during times of intense rainfall there may be some localised flooding in adjacent areas. However, overland

water flows in the local area are typically trapped in rock fissures, rock scree particles or get directed into rocky creek systems (Pilbara Flora, 2008).

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

Methodology BoM (2009)
Pilbara Flora (2008)

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

Comments

The clearing permit application was advertised by the Department of Mines and Petroleum, inviting submissions from the public. There was one submission received stating no objections to the proposed clearing.

There is one native title claim over the area under application; WC97/089 (GIS Database). This claim has been registered with the National Native Title Tribunal. However, the mining tenement has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993.*

According to available databases there are no registered Aboriginal Sites of Significance within the application area (GIS Database). It is the proponents' 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 proponents' responsibility to liaise with the Department of Environment and Conservation and the Department of Water to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

Methodology GIS Database
- Native Title Claims
- Sites of Aboriginal Significance

4. Assessor's comments

Comment

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

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

5. References

Bureau of Meteorology, (2009) BOM Website - Climate Averages by Number, Averages for Paraburdoo Aero. Available online at: http://www.bom.gov.au/climate/averages/tables/cw_007185.shtml accessed on 14 September 2009.

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 14 September, 2009.

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

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.

Payne, A.L., Mitchell, A.A. and Holman, W.F. (1988) An Inventory and Condition Survey of Rangelands in the Ashburton River Catchment, Western Australia. Department of Agriculture, Western Australia.

Pilbara Flora (2008) Flora and Vegetation Survey for the Development of Multiple Areas within the Tom Price Mine. Unpublished Report for Hamersley Iron Pty Ltd, Western Australia.

Rio Tinto Iron Ore (2009) Additional information supplied for clearing permit application 3241/1. Received by assessing officer on 14 August 2009.

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. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.

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.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.

6. Glossary

Acronyms:

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

Definitions:

{Atkins, K (2005). *Declared rare and priority flora list for Western Australia, 22 February 2005*. Department of Conservation and Land Management, Como, Western Australia} :-

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.