



1. Application details

1.1. Permit application details

Permit application No.: 2324/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Hamersley Iron Pty Ltd

1.3. Property details

Property: State Agreement Mineral Lease Area 4SA (AML70/4)
Local Government Area: Shire Of Ashburton
Colloquial name: Mt Tom Price South Pod Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
18		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	Clearing Description	Vegetation Condition	Comment
Beard vegetation associations have been mapped at a 1:250 000 scale for the whole of Western Australia and are useful to look at vegetation extent in a regional context. Two Beard vegetation associations are located within the application area (GIS Database): 567: Hummock grasslands, shrub steppe; mulga & kanji over soft spinifex & <i>T. basedowii</i> . According to the Shared Land Information Platform (SLIP, 2007), Beard vegetation association 567 is a shrubland dominated by <i>Acacia aneura</i> , with sub-dominants of <i>Senna sp.</i> , <i>A. pruinocarpa</i> , <i>A. xiphophylla</i> and <i>Eremophila sp.</i> Keith Lindbeck and Associates conducted a vegetation survey over the application area and surrounding vegetation in October 2007. As a result, one vegetation type was identified as occurring within the application area (Keith Lindbeck and Associates, 2007). This was: H17-1: Colluvial upland slopes. <i>Acacia pruinocarpa</i> low open forest over <i>Triodia wiseana</i> hummock grassland.	Hamersley Iron Pty Ltd have applied to clear 18 hectares of native vegetation within a 38 hectare application area to expand an existing pit. Clearing will be undertaken by a bulldozer, blade down.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	Vegetation condition is based on a site inspection conducted by the assessing officer in January 2008. The vegetation exists as small pockets of vegetation within a working pit area. The vegetation is suffering from water starvation and dust and appears to have been subject to some rehabilitation efforts in the past.

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 at variance to this Principle**
The application area occurs within the Hamersley (PIL3) Interim Biogeographic Regionalisation of Australia Sub-region (GIS Database). This sub-region is characterised by 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 assessing officer conducted a site inspection of the application area in January 2008. It was noted during this inspection that the vegetation within the application area was severely disturbed due to adjacent mining activity, and may even comprise historical rehabilitation and revegetation. As a result, the vegetation within the application area is not representative of an area of outstanding biodiversity in the Pilbara Bioregion.

Given its highly disturbed state, the application area would not be diverse in fauna species.

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

Methodology CALM (2002)
GIS Database:
- Interim Biogeographic Regionalisation of Australia (subregions) - EA 18/10/00

(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

The assessing officer has conducted a search of the Western Australian Museum's online fauna database between the coordinates 117.5°, 22.5° and 118.1°, 23.1°, representing a 50 kilometre radius around the application area.

This search identified 6 Amphibian, 53 Avian, 21 Mammalian and 63 Reptilian species that may occur within the application area (Western Australian Museum, 2008). Of these, the following species of conservation significance have previously been recorded within the search area: Striated Grasswren (*Amytornis striatus striatus*), Night Parrot (*Pezoporus occidentalis*), Long-tailed Dunnart (*Sminthopsis longicaudata*), Orange Leaf-nosed Bat (*Rhinonictis aurantius*), Lakeland Downs Mouse (*Leggadina lakedownensis*), Pebble-mound Mouse (*Pseudomys chapmani*) and Pilbara Olive Python (*Liasis olivaceus barroni*).

Keith Lindbeck and Associates conducted a desktop search of the DEC's Threatened Fauna Database and the Department of Environment and Water Resources "Protected Matters Search Tool. In addition to those species of conservation significance listed above, this search identified the following species within the search area (Keith Lindbeck and Associates, 2007): Peregrine Falcon (*Falco peregrinus*), Australian Bustard (*Ardeotis australis*), Northern Quoll (*Dasyurus hallucatus*), and Rainbow Bee-eater (*Merops ornatus*). The search also identified a range of migratory marine and wetland bird species. However, it is unlikely that the proposed clearing will impact on these migratory species due to their transitory presence within the application area and the highly disturbed nature of the vegetation within the application area.

The assessing officer conducted a site visit of the application area in January 2008. During this site visit it was noted that the vegetation within the application area would not be suitable habitat for any of the species mentioned above as the vegetation was in a very degraded state.

Therefore, the vegetation within the application area is not significant habitat for fauna.

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

Methodology Keith Lindbeck and Associates (2007)
Western Australian Museum (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, no Declared Rare or Priority Flora species have been recorded within the application area (GIS Database).

According to information supplied by Hamersley Iron in support of their application, *Eremophila magnifica ssp. magnifica* (P4), have been identified as occurring within the application area. Florabase has 15 recorded locations for this species (Western Australian Herbarium, 1998-). A survey over the application area and surrounding vegetation near the Mt Tom Price Mine recorded 150 plants of this species at 11 locations (Keith Lindbeck and Associates, 2007). It was described as being common at its location.

The Pilbara Iron Rare and Priority flora database has recorded 63 locations of this species (Keith Lindbeck and Associates, 2007). 19 of these locations occur within the Tom Price Mine area, totalling more than 450 plants. Pilbara Iron have recorded over 3650 individual plants across its lease areas (Keith Lindbeck and Associates, 2007).

Therefore, the vegetation to be cleared is not likely to be significant habitat for this species.

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

Methodology Western Australian Herbarium (1998-)
Keith Lindbeck And Associates (2007)
GIS Database:
- Declared Rare and Priority Flora List - CALM 01/07/05

(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 Threatened Ecological Communities (TEC) located within the application area (GIS Database). The nearest TEC is located approximately 40 kilometres to the east. At this remote distance there is little likelihood of any impact to this TEC from the proposed clearing.

None of the vegetation communities identified during a flora survey over the application area are considered to be threatened ecological communities, or ecological communities at risk (Keith Lindbeck and Associates, 2007).

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

Methodology Keith Lindbeck and Associates (2007)
GIS Database:
- Threatened Ecological Communities - CALM

(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

According to available databases, the application area falls within the Pilbara IBRA Bioregion (GIS Database). This bioregion's vegetation extent remains at approximately 100% of its Pre-European extent (see table). Beard Vegetation Association 567 occurs within the application area (GIS Database). This vegetation associations remain at 100% of their Pre-European extent (see table). The Beard vegetation association is well represented in conservation estate (see table).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-european % in IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,164	17,794,651	~100	Least Concern	6.3
Beard veg assoc. – State					
567	777,517	777,517	~100	Least Concern	22.3
Beard veg assoc. - bioregion					
567	776,833	776,833	~100	Least Concern	22.3

* Shepherd et al. (2001) updated 2005

** Department of Natural Resources and Environment (2002)

Therefore, the application area is not part of 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 et al (2001)
GIS Database:
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00
- Pre-European Vegetation - DA 01/01

(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 at variance to this Principle

The assessing officer conducted a site inspection during January 2008. It was noted at this time that the area was extremely disturbed due to past mining activities and that drainage in the area was diverted around the

application area and surrounding area. Subsequently the application area is no longer host to watercourses or vegetation that is a buffer to watercourses or wetlands.

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

Methodology

(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).

The application area is comprised of the following land systems (GIS Database):

Newman

The Newman Land System is described as rugged jaspelite plateaux, ridges and mountains supporting hard spinifex grasslands (Van Vreeswyk et al, 2004). An analysis of aerial photography for the area reveals the application area is most likely to consist of the "lower slope" land unit within this land system. The stony mantle on the slopes and plains within this land unit prevent erosion. There is likely to be some dust created by the expansion of the mining area associated with this clearing.

The application area experiences low annual rainfall (311 millimetres/year) (BoM, 2008), and very high annual pan evaporation rates (~3400 millimetres/year) (Luke et al, 1987). Most rainfall will be either utilised by vegetation or lost through evaporation. Subsequently, there is little recharge of groundwater as a result of rainfall. As a result, the removal of 18 hectares of vegetation is not likely to contribute to a rise in the water table, waterlogging or salinisation.

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

Methodology BoM (2008)
Luke et al (1987)
Van Vreeswyk et al (2004).
GIS Database:
- Rangeland Land System Mapping - DA

(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 is located approximately 12 kilometres to the west of Karijini National Park (GIS Database). At this distance it is not likely that the vegetation within the application area provides a buffer to a conservation area, or is important as an ecological link to a conservation area. The vegetation types within the application areas are well replicated in other land systems within the Pilbara region. Subsequently, their conservation status is under no threat.

It is noted by the assessing officer that large areas of vegetation between the application area and Karijini National Park were burnt around late December 2007 to early January 2008.

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

Methodology GIS Database:
- CALM Managed Lands and Waters - CALM 1/7/05

(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 Supply Area (PDWSA) (GIS Database).

The area is located within a *Rights in Water Irrigation Act, 1914* (RIWI Act) Surface Water Management Area (DoW, 2008). The proponent is required to obtain a Beds and Banks Permit in order to disturb any water course (DoW, 2008). The area is located in a RIWI Act Groundwater area. The proponent is required to obtain permits to extract groundwater in this area (DoW, 2008).

There are no permanent waterbodies or watercourses within, or in association with the application area (GIS Database). Rainfall in this area is mainly restricted to a wet summer season, where precipitation can be variable. Rain can be either intense falls associated with cyclonic events, or scattered falls associated with local

thunderstorms. The application area receives average annual rainfall of 311 millimetres (BoM, 2008), and experiences a pan evaporation rate of approximately 3400 millimetres/year (Luke et al, 1987). Therefore, during normal rainfall events, surface water within the application area is likely to evaporate or be utilised by vegetation quickly. However, substantial rainfall events create surface sheet flow which is likely to be high in sediments.

During normal rainfall events, the proposed clearing would not likely lead to an increase in sedimentation of waterbodies on or off site.

The application area is located within the Pilbara Groundwater Area (DoW, 2008). Any extraction of groundwater in this area will require a groundwater license (DoW, 2008). The groundwater salinity within the application area is approximately 500 - 1000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). This is considered to be potable water. Given the size of the area to be cleared (18 hectares) compared to the size of the Hamersley groundwater province (101,668 kilometres²) (GIS Database), the proposed clearing is not likely to cause salinity levels within the application area to alter significantly.

There are no known Groundwater Dependant Ecosystems within the application area (GIS Database).

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

Methodology BoM (2008)
DoW (2008)
Luke et al (1987)
GIS Database:
- Groundwater, Statewide - DoW
- Public Drinking Water Source Areas (PDWSA's) - DoW
- Hydrography, Linear - DOE 1/2/04
- Potential Groundwater Dependent Ecosystems - DoE 2004

(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 an arid, tropical climate with a wet summer season and a dry winter season (BoM, 2008). Most rainfall is received during the wet season, but falls can be variable (BOM, 2008). Rain can either be sporadic (local thunderstorms) or heavy and intense (cyclonic events). It is likely that during times of intense rainfall there may be some localised flooding in adjacent areas. However, the method of clearing and the small area to be cleared are not likely to lead to an increase in flood height or duration. Flooding is not expected within the application area as it is located higher in the landscape.

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

Methodology BoM (2008)

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

Comments

There is a native title claim over the area under application (GIS Database). The 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*.

There are no aboriginal sites of significance that intersect with the application area.

The application area is located within a *Rights in Water Irrigation Act, 1914* (RIWI Act) Surface Water Management Area (GIS Database). The proponent is required to obtain a Beds and Banks Permit in order to disturb any water course (DoW, 2008). The application area is located in a RIWI Act Groundwater area. The proponent is required to obtain permits to extract groundwater in this area (DoW, 2008).

There were no public comments received during the public comments period.

Methodology DoW (2008)
GIS Database:
- Native Title Claims - DLI
- Aboriginal Sites of Significance - DIA

4. Assessor's comments

Purpose	Method Applied	Comment
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		area (ha)/ trees	
State	Mechanical	18	The proposal has been assessed against the Clearing Principles is not likely to be at variance to Principle , (c), (d), (g), (h), (i) and (j) and is not at variance to Principle (a), (b), (e) and (f).
Agreement	Removal		

It is recommended that should the permit be granted, conditions be imposed on the permit for the purpose of reporting on areas cleared.

5. References

- BoM (2007). Climate Averages - Paraburdoo. http://www.bom.gov.au/climate/averages/tables/cw_007185.shtml Accessed 22/2/08. Bureau of Meteorology.
- 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.
- DoW (2008). Advice for land clearing application 2235/1. Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR), received 21/1/08. Department of Water, Western Australia.
- Keighery BJ (1994). Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Keith Lindbeck and Associates (2007). Vegetation Survey and Land Clearing Information for Proposed Mining Areas; East, West and Central Pits, Tom Price Minesite. Unpublished report prepared for Hamersley Iron Pty Ltd by Keith Lindbeck and Associates, Western Australia.
- Luke GJ, Burke KL and O'Brien TM (1987). Evaporation Data for Western Australia. Resource Management Technical Report No. 65. Department of Agriculture, Western Australia.
- Shepherd DP, Beeston GR and Hopkins AJM (2001). Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
- Van Vreeswyk AME, Payne AL, Leighton KA & Hennig P, (2004). Technical Bulletin No. 92: An inventory and condition survey of the Pilbara region, Western Australia. Department of Agriculture, Western Australia.
- Western Australian Herbarium (1998-). FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.dec.wa.gov.au/>
- Western Australian Museum (2008). Faunabase - Western Australian Museum, Queensland Museum and Museum & Art Gallery of NT Collections Databases. <http://www.museum.wa.gov.au/faunabase/prod/index.htm> Accessed 21/2/08. Western Australian Museum.

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.
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:
- is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
 - 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.