



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 6014/1
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, Mining Lease 272SA (AM 70/272)
Local Government Area: Shire of Ashburton
Colloquial name: Marandoo East Drilling Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
6		Mechanical removal	Evaluation drilling and access tracks

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 18 December 2014

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
<p>Beard vegetation associations have been mapped for the whole of Western Australia and are useful to look at vegetation in a regional context. The following Beard vegetation associations are located within the application area (GIS Database):</p> <p>18: Low woodland; mulga (<i>Acacia aneura</i>) 29: Sparse low woodland; mulga, discontinuous in scattered groups.</p> <p>A flora and vegetation assessment conducted by Eco Logical Australia Pty Ltd (ELA) (ELA, 2013) identified one vegetation community within the application area:</p> <p>ApAaAa: <i>Acacia pruinocarpa</i>, <i>Acacia aptaneura</i> and <i>Acacia aptaneura</i> (hybrid) tall shrubland over <i>Acacia pachyacra</i>, <i>Psydrax latifolia</i> and <i>Eremophila forestii</i> subsp. <i>forestii</i> scattered shrubs over <i>Triodia epactialpungens</i> open hummock grassland and <i>Themeda triandra</i> very over tussock grassland on clay plains with ironstone wash and scattered ironstone pebbles.</p>	<p>Marandoo East Drilling Project. Hamersley Iron Pty Ltd proposes to clear up to six hectares of native vegetation within a total boundary of approximately 75 hectares, for the purpose of evaluation drilling and access track construction. The project is located approximately 43.4 kilometres east of Tom Price, in the Shire of Ashburton.</p>	<p>Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994); to: Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994).</p>	<p>The vegetation condition was determined by Eco Logical Australia Pty Ltd (ELA, 2013). The vegetation condition was described using a scale based on Trudgen (1988) and has been converted to the corresponding conditions from the Keighery (1994) scale. A pre-existing track has impacted vegetation within the application boundary (ELA, 2013).</p>

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 vegetation within the application area is mapped as belonging to Beard vegetation associations 18 and 29 (GIS Database). A flora and vegetation assessment was conducted over the application area by Eco Logical Australia Pty Ltd (ELA) on 17 December 2013 (ELA, 2013). A total of 30 flora species from 13 families and 19 genera were identified, which was not considered to represent an area of high floristic diversity (ELA, 2013). One individual of the Priority 4 flora species *Goodenia nuda* was identified. There are 66 records of this species lodged with the Western Australian Herbarium (Western Australian Herbarium, 2014), and *G. nuda* does not appear to be highly restricted in distribution or abundance. The proposed clearing is therefore not considered to

impact the conservation status of this species. One vegetation community was recorded within the application area that may represent 'Valley Floor Mulga', which has been identified as an 'ecosystem at risk' by Kendrick (2001).

Vegetation within the application area did not belong to either a Threatened Ecological Community (TEC), or a Priority Ecological Community (PEC) (ELA, 2013). The proposed clearing lies within the boundary of a Priority 1 sub-type of the Coolibah-lignum flat Priority Ecological Community (PEC) (ELA, 2013; GIS Database). This sub-type is comprised of Coolibah woodland over lignum and silky browntop (*Eulalia aurea*), and is one of two known occurrences situated on the Mount Bruce Flats (DEC, 2013). Threats to this PEC include dewatering processes, grazing, and vegetation clearing associated with infrastructure corridors, such as that proposed by the applicant (DEC, 2013). However, none of the vegetation units identified to occur within the application area represent a Coolibah-lignum flat (ELA, 2013), and it is likely that the intersecting area represents a buffer zone.

One fauna habitat type was identified within the application area (ELA, 2013). This habitat type, low shrubland plains, is widespread throughout the Pilbara region (ELA, 2013). Naturemap records within a ten kilometre buffer of the application area reveal that the application area may provide habitat for 11 mammal, 36 avian, 2 reptile and five amphibian species (DPaW, 2014a). Through opportunistic sightings, ELA (2013) identified an additional 5 bird species, 2 native mammal and 2 invasive mammal species (red fox; *Vulpes vulpes* and domestic cow; *Bos taurus*). ELA (2013) suggest that a number of Threatened and Priority fauna may occur intermittently within the application boundary, but they are unlikely to be specifically dependent on habitat within the application area. Soil structure was considered unsuitable for Western Pebble-mound Mouse mounds (*Pseudomys chapmani*; Priority 4) (ELA, 2013). The application area is unlikely to comprise a high level of fauna diversity.

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

Methodology DEC (2013)
DPaW (2014a)
ELA (2013)
Kendrick (2001)
Western Australian Herbarium (2014)
GIS Database:
- Pre-European vegetation
- Threatened Ecological Sites Buffered

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

Comments Proposal is not likely to be at variance to this Principle

The flora and vegetation assessment conducted by ELA (2013) observed one broad fauna habitat type throughout the application area, identified as 'low shrubland plains'. This habitat consists of low lying clay loam plains supporting sparse mixed *Eucalyptus* sp. and *Corymbia* sp. over open mixed *Acacia* spp. (dominated by Mulga) shrubland over open *Triodia* hummock grasslands, and sparse low mixed grasses and shrubs. Vegetation is structured into 'groves', and between them are non-vegetated hardpans.

ELA (2013) advise that this habitat provides nesting and foraging resources for a number of bird species, and supports a range of reptiles and mammals, including micro-chiropteran bats ('microbats') and small rodents. However, low shrubland plains habitat does not provide any resources or important habitat features, such as cave or denning habitat, which are restricted within the Pilbara region (ELA, 2013).

A number of conservation significant fauna may also occur within the application area. Those most likely to occur include the Northern Quoll (*Dasyurus hallucatus*; Schedule 1), Rainbow Bee-eater and Ghost Bat (*Macroderma gigas*; Priority 4) (ELA, 2013; DPaW, 2014a). The habitat within the application area is most likely to be used by conservation significant species during foraging or dispersal activities, and is unlikely to represent critical habitat for these fauna. The proposed clearing of six hectares within an application boundary of approximately 75 hectares is not likely to render this habitat unusable for dispersal or foraging.

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

Methodology DPaW (2014a)
ELA (2013)

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Comments Proposal is not likely to be at variance to this Principle

According to available databases, there are no records of Threatened Flora within a ten kilometre radius of the application area (DPaW, 2014a; GIS Database). Similarly, no Threatened flora were recorded during the flora and vegetation assessment, nor were they considered to potentially exist within the application area (ELA, 2013).

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

Methodology DPaW (2014a)
 ELA (2013)
 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

According to available databases, there are no known Threatened Ecological Communities (TECs) within the application area (GIS Database). The flora and vegetation assessment over the application area did not record any vegetation communities which were representative of a TEC (ELA, 2013). The nearest known TEC is approximately 56 kilometres north, north-west of the application area and is a Themeda grassland on cracking clays (GIS Database).

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

Methodology ELA (2013)
 GIS Database:
 - Threatened Ecological Sites Buffered

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

Comments Proposal is not at variance to this Principle

The application area falls within the Pilbara Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 99.6% of the pre-European vegetation remains (see table) (Government of Western Australia, 2013; GIS Database).

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

18: Low woodland; mulga (*Acacia aneura*)

29: Sparse low woodland; mulga, discontinuous in scattered groups

Approximately 99% of these Beard vegetation associations remain at both a state and bioregional level (Government of Western Australia, 2013). Based on aerial imagery, the vegetation within the application area is neither a remnant itself nor does it form part of any remnants within the local area (GIS Database).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DPaW Managed Lands
IBRA Bioregion – Pilbara	17,804,427	17,729,352	~99.6	Least Concern	6.3
Beard veg assoc. – State					
18	19,892,305	19,843,727	~99.8	Least Concern	6.3
29	7,903,991	7,900,200	~99.95	Least Concern	5.2
Beard veg assoc. – Bioregion					
18	676,557	672,424	~99.39	Least Concern	17.2
29	1,133,220	1,132,939	~99.98	Least Concern	2.0

* Government of Western Australia (2013)

** 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)
 Government of Western Australia (2013)
 GIS Database:
 - IBRA WA (Regions - Sub Regions)
 - Mount Bruce 50cm Orthomosaic - Landgate 2004
 - 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

There are no ephemeral or permanent watercourses or wetlands that occur within the application area (ELA, 2013; GIS Database). The vegetation type (particularly Mulga) is likely to experience sheet flows of water (ELA, 2013), however the proposed clearing for exploration is not expected to inhibit sheet flow.

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

Methodology ELA (2013)
GIS Database:
- Hydrography, linear
- Rivers

(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 occurs within the Boolgeeda land system (GIS Database). This land system consists of gently inclined slopes and plains, and is not considered to be susceptible to soil erosion (Van Vreeswyk et al., 2004). However, ELA (2013) advise that some erosion may occur following the clearing of vegetation due to the sheet flow that this area experiences.

No weed species were detected during the flora and vegetation assessment, however, the introduction of invasive flora is more likely to occur following habitat disturbance such as the proposed clearing (DEC, 2011), and may contribute to land degradation (ELA, 2013). Land degradation via weed invasion as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

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

Methodology DEC (2011)
ELA (2013)
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 application area lies within the outer boundary of the Karijini National Park, which is listed on the Register of National Estate and is therefore considered to be an Environmentally Sensitive Area (GIS Database). However, the application area occurs within a 5(1)(g) Reserve that functions as an infrastructure corridor and is excised from the Karijini National Park area (GIS Database). The reserve is vested in the Conservation Commission of Western Australia and managed by DPaW (GIS Database). Liaison has occurred with DPaW as the land managers of the 5(1)(g) Reserve. The proponent has resolved all concerns that were raised through this process by amending the Exploration Environmental Management Plan (EEMP) that applies over the area and committing to liaise with DPaW during the rehabilitation process (DPaW, 2014b; RTIO, 2014).

A number of weed species in the Pilbara have the potential to increase in abundance and/or distribution following disturbance (DEC, 2001). Invasive flora species can decrease the biodiversity value of an area, as they out-compete native vegetation for available resources, contribute to land degradation and increase the frequency and intensity of fires (DEC, 2011). Potential impacts to biodiversity within and nearby the application area as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

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

Methodology DEC (2001)
DEC (2011)
DPaW (2014b)
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

There are no ephemeral watercourses, permanent watercourses, or Public Drinking Water Source Areas (PDWSAs) that occur within the application area (ELA, 2013; GIS Database). Sheet flows are likely to occur

during periods of rainfall (ELA, 2013), however, it is expected that this surface water is subjected to natural levels of sedimentation. Given the small area to be cleared, the proposed clearing is not likely to cause any deterioration in surface water or groundwater quality in the local area.

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

Methodology ELA (2013)
GIS Database:
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)

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

Comments Proposal is not likely to be at variance to this Principle

Mean annual rainfall in Tom Price is approximately 384 millimetres (BoM, 2014). The Pilbara region represents a transitional zone between semi-arid and tropical climates, and receives a majority of its rainfall during the summer months (Kendrick, 2001; CALM, 2002). During these periods of intense rainfall, localised flooding is not unusual (DoW, 2010). The application area consists mostly of stony soils and hard clays (Van Vreeswyk et al., 2004), which are less permeable to water and therefore there is the potential of some localised flooding within cleared areas.

A majority of the application area is located within the Ashburton River catchment area (GIS Database). Given the size of the area to be cleared (six hectares) compared with the size of the catchment area (7,877,743 hectares), and that the permit area is subject to seasonal flood events, it is unlikely that the clearing will exacerbate the incidence or intensity of flooding within the local area.

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

Methodology BoM (2014)
CALM (2002)
DoW (2010)
Kendrick (2001)
Van Vreeswyk et al. (2004)
GIS Database:
- Hydrographic Catchments - Catchments

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

Comments

There are no native title claims over the area under application (GIS Database). The mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

According to available databases, there are no 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 Regulation 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 10 March 2014 by the Department of Mines and Petroleum inviting submissions from the public. There were no submissions received.

Methodology GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims - Determined by the Federal Court
- Native Title Claims - Registered with the NNTT

4. References

- BoM (2014) Climate Statistics for Australian Locations. Climate Statistics for Australian Locations. A Search for Climate Statistics for Tom Price, Australian Government Bureau of Meteorology, http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p_nccObsCode=139&p_display_type=dataFile&p_startYear=&p_c=&p_stn_num=005005, viewed March 2014.
- CALM (2002) Bioregional Summary of the 2002 Biodiversity Audit for Western Australia. Department of Conservation and Land Management, Western Australia.
- DEC (2001) Environmental weed strategy for Western Australia. Department of Environment and Conservation, Perth.
- DEC (2011) Invasive Plant Prioritisation, Department of Environment and Conservation, Perth.
- DEC (2013) Priority Ecological Communities for Western Australia. Species and Communities Branch, Department of

Environment and Conservation, Perth.

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 (2010) Pilbara: Regional water plan 2010 - 2030. Department of Water, Perth.

DPaW (2014a) NatureMap: Mapping Western Australia's Biodiversity, Department of Environment and Conservation, <http://naturemap.dec.wa.gov.au/default.aspx>, viewed March 2014.

DPaW (2014b) Further information provided to the assessing officer on 2 December, 2014.

ELA (2013) Flora and Vegetation Survey for Marandoo East Drilling (AR-13-11714): Native Vegetation Clearing Permit Supporting Report. Consultants report prepared for Rio Tinto Iron Ore Pty Ltd, February 2014.

Government of Western Australia (2013) 2012 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2012. WA Department of Environment and Conservation, Perth.

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

Kendrick, P. (2001) Pilbara 3 (PIL3 – Hamersley Subregion). In A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002 (eds J. E. May & N. L. McKenzie). Department of Conservation and Land Management, WA.

RTIO (2014) Further information provided to the assessing officer on 1 December, 2014.

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

Western Australian Herbarium (2014) FloraBase - The Western Australian Flora. Department of Parks and Wildlife. <http://florabase.dpaw.wa.gov.au/> (Accessed March 2014).

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia (now DPaW and DER)
DER	Department of Environment Regulation, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DRF	Declared Rare Flora
DotE	Department of the Environment, Australian Government
DoW	Department of Water, Western Australia
DPaW	Department of Parks and Wildlife, Western Australia
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DotE)
EPA	Environmental Protection Authority, Western Australia
EP Act	<i>Environmental Protection Act 1986</i> , Western Australia
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (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
PEC	Priority Ecological Community, Western Australia
RIWI Act	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
s.17	Section 17 of the <i>Environment Protection Act 1986</i> , Western Australia
TEC	Threatened Ecological Community

Definitions:

{DPaW (2013) Conservation Codes for Western Australian Flora and Fauna. Department of Parks and Wildlife, Western Australia}:-

T **Threatened species:**
 Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna or the Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).

Threatened Fauna and Flora are further recognised by the Department according to their level of threat using IUCN Red List criteria. For example Carnaby's Cockatoo *Calyptorhynchus latirostris* is specially protected under the *Wildlife Conservation Act 1950* as a threatened species with a ranking of Endangered.

Rankings:
 CR: Critically Endangered - considered to be facing an extremely high risk of extinction in the wild.
 EN: Endangered - considered to be facing a very high risk of extinction in the wild.
 VU: Vulnerable - considered to be facing a high risk of extinction in the wild.

X **Presumed Extinct species:**
 Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation

(Rare Flora) Notice for Presumed Extinct Flora (which may also be referred to as Declared Rare Flora).

- IA Migratory birds protected under an international agreement:**
Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice.
Birds that are subject to an agreement between governments of Australia and Japan, China and The Republic of Korea relating to the protection of migratory birds and birds in danger of extinction.
- S Other specially protected fauna:**
Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice.
- P1 Priority One - Poorly-known species:**
Species that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, rail reserves and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.
- P2 Priority Two - Poorly-known species:**
Species that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, unallocated Crown land, water reserves, etc. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.
- P3 Priority Three - Poorly-known species:**
Species that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.
- P4 Priority Four - Rare, Near Threatened and other species in need of monitoring:**
- (a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.
 - (b) Near Threatened. Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.
 - (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.
- P5 Priority Five - Conservation Dependent species:**
Species that are not threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.