



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3760/1
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 246SA (AML 70/246)
Local Government Area: Shire of Ashburton
Colloquial name: Western Range Phase 1 Project

1.4. Application

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

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

Beard Vegetation Associations have been mapped at a scale of 1:250,000 for the whole of Western Australia. Three Beard Vegetation Associations are located within the application area (Shepherd, 2007):

- **Beard Vegetation Association 82:** hummock grasslands, low tree steppe; Snappy Gum over *Triodia wiseana*;
- **Beard Vegetation Association 163:** shrublands; *Eremophila* and *Cassia* dwarf scrub;
- **Beard Vegetation Association 181:** shrublands; Mulga and Snakewood scrub.

Biota Environmental Sciences (Biota) conducted a flora and vegetation survey in 2009 across a large area of the Western Ranges that included the application area. The survey identified 18 plant communities across the survey area, of which the following 10 occur within the application area (Biota, 2009):

Vegetation of Hills and Ridges

Vegetation Unit 1: *Acacia aneura*, *Acacia pruincarpa* tall open shrubland to low woodland over *Acacia tetragonophylla* scattered shrubs over *Triodia epactia* hummock grassland.

This vegetation unit occurred on the crest and slopes of the tall range of hills that comprise the Western Range itself. Various forms of Mulga were recorded, with *Acacia* aff. *aneura* (narrow fine veined) the most common. Other tall shrubs varied in dominance depending on the location, including species such as *Acacia kempeana*, *Dodonaea pachyneura* and *Dodonaea petiolaris*.

Vegetation Unit 2: *Acacia pruincarpa*, *Grevillea berryana* tall open shrubland over *Eremophila fraseri* subsp. *fraseri*, *Eremophila canaliculata*, *Eremophila cuneifolia* scattered low shrubs over *Triodia epactia* hummock grassland.

This vegetation occurred on the crest and slopes of the tall ridge of the Western Range interspersed with Vegetation Unit 1. Very scattered Mulga tall shrubs were occasionally present, however, this species was not dominant as in the previous vegetation unit.

Vegetation Unit 3: *Dodonaea pachyneura*, *Eremophila cryptothrix* tall shrubland over *Triodia epactia* hummock grassland.

This vegetation occurred in gullies and on the slopes of steep-sided valleys on the southern side of the Western Range. This was the main unit from which the Priority 1 species *Aluta quadrata* was recorded, although it also occurred as scattered individuals on the rocky slopes of the Western Range adjacent to these valleys, and in creeklines draining from them.

Vegetation Unit 4: *Acacia tetragonophylla*, *Acacia synchronicia* scattered tall shrubs over *Eremophila cuneifolia* scattered shrubs over *Triodia epactia* hummock grassland.

This vegetation occurred on the northern footslopes of the Western Range, as well as scattered low ridges and hills to the north.

Vegetation Unit 5: *Acacia tetragonophylla* tall open shrubland over *Triodia wiseana* hummock grassland.

This vegetation occurred on low stony calcrete hills and the undulating plains surrounding them.

Vegetation of Stony Plains

Vegetation Unit 6: *Acacia xiphophylla* tall open shrubland over *Acacia tetragonophylla* open shrubland over *Eremophila cuneifolia*, *Cassia* spp. scattered low shrubs.

This vegetation occurred broadly over the stony plains on both the northern and southern sides of the Western Range. It was intermingled with Vegetation Unit 9, but occurred on slightly heavier clay soils than those supporting the Mulga tall

shrublands. Various forms of Mulga (*Acacia aneura*) were frequently present, mainly of *Acacia* aff. *aneura* (narrow fine veined) however these did not visually dominate the overstorey stratum. The open shrubland often included *Acacia synchronicia* and *Acacia wanyu* along with *Acacia tetragonophylla*, while the scattered low shrubs typically included *Eremophila cuneifolia*, various *Cassia* species including *Cassia luerssenii*, *Cassia oligophylla* x *helmsii* and *Cassia stricta*, *Corchorus crozophorifolius*, *Maireana georgei*, *Maireana melanocoma*, *Ptilotus obovatus*, *Ptilotus schwartzii* and *Tribulus suberosus*. Hummock grasses were typically absent, however, occasionally very scattered individuals or small patches of *Triodia epactia* were recorded.

Vegetation Unit 7: *Acacia aneura*, *Acacia tetragonophylla* tall open shrubland over *Cassia* spp. scattered low shrubs.

This vegetation unit occurred broadly over arid, stony gibber plains. Various *Cassia* species were recorded, including *Cassia stricta*, *Cassia glutinosa*, *Cassia luerssenii* (as well as various hybrids between the two latter species and *Cassia stricta*), *Cassia oligophylla* and *Cassia oligophylla* x *helmsii*.

Vegetation Unit 8: *Acacia aneura*, *Acacia tetragonophylla* tall shrubland over *Triodia epactia* open hummock grassland.

This vegetation typically occurred on areas of stony plain between stony ridges and drainage lines, and therefore represented a mixture of elements from these habitats. The form of Mulga dominating the single quadrat in the unit was *Acacia* aff. *aneura* (long, flat, recurved), however other taxa are likely to be present in other areas.

Vegetation Unit 9: *Acacia aneura*, *Acacia xiphophylla* tall open scrub over mixed open shrubland over *Triodia epactia* open hummock grassland.

This vegetation occurred in minor flowlines through the stony plains supporting the Mulga and Snakewood tall shrublands. The proportion of *Acacia aneura* versus *Acacia xiphophylla* varied with the type of surrounding vegetation, and *Acacia citrinoviridis* was sometimes a co-dominant tall shrub in larger flowlines. An open cover of moderate-height and low shrubs was typically present, but very variable depending on the location; species commonly recorded as dominants included *Corchorus crozophorifolius*, *Eremophila cuneifolia* and *Ptilotus obovatus*.

Vegetation Unit 10: *Corymbia ferritcola* low open woodland over *Acacia citrinoviridis*, *Dodonaea pachyneura*, *Eremophila cryptothrix* tall shrubland over *Triodia epactia* open hummock grassland.

This vegetation occurred along rocky creeklines through the base of the steep-sided valleys. Only two of the larger occurrences have been individually mapped, however this vegetation type is likely to occur in most of the larger valleys. Open tussock grassland of *Eriachne tenuiculmis* and *Eriachne mucronata* was usually intermixed with the Spinifex layer.

Clearing Description

Hamersley Iron (2010) proposes to clear up to 98 hectares of native vegetation, within an area equalling approximately 1726 hectares. The application area is located approximately 17 kilometres west of Paraburdoo (GIS Database).

The purpose of the proposed clearing is for evaluation drilling and access tracks (Hamersley Iron, 2010). Vegetation will be cleared by bulldozer with the blade down and the vegetation will be stockpiled for rehabilitation purposes (Hamersley Iron, 2010).

Vegetation Condition

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

to

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

Comment

The vegetation condition rating is derived from a flora and vegetation survey conducted by Biota (2009). It was reported by Biota (2009) that disturbance to the application area consisted of exploration tracks and occasional weeds.

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 is located within the Hamersley subregion of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion and the Ashburton subregion of the Gascoyne IBRA bioregion (GIS Database). The Hamersley subregion is described by CALM (2002) as being rich in *Acacia*, *Triodia*, *Ptilotus* and *Sida* species. CALM (2002) reports that the Ashburton subregion is high in *Eremophila* diversity.

A flora and vegetation survey was conducted by Biota in 2009 over a large area that included the application area. Biota (2009) identified a total of 249 native vascular flora belonging to 109 genera from 45 families. The dominant plant families have been reported by Biota (2009) as being *Poaceae* (27), *Mimosaceae* (24), *Malvaceae* (22), *Chenopodiaceae* (18) and *Amaranthaceae* (17). These results are within the range expected for the size of the survey area in the locality and do not therefore represent particularly high diversity (Biota, 2009).

Biota (2009) reports that Vegetation Units 1 and 8 fall into the "lower slope Mulga" ecosystem at risk category. These vegetation units have been identified as being at risk due to the high cover of Spinifex which would make the ecosystem susceptible to fire and prevent the regeneration of Mulga (Kendrick, 2001a as cited by Biota, 2009). However, Biota (2009) reports that these units are surrounded by large areas of stony habitat with limited grass understorey (and therefore limited potential to carry fire) and hence it is considered that they are less susceptible to long-term degradation through increased fire frequency and/or intensity. Therefore, Biota (2009) has not assigned these vegetation units an elevated conservation significance ranking above the general vegetation.

The vegetation and landforms within the application area are well represented within the region (Biota, 2009). No Declared Rare Flora, Threatened Ecological Communities or Priority Ecological Communities were recorded within the Western Range survey area during the flora and vegetation survey (Biota, 2009).

Numerous weed species were identified within the application area (Biota, 2009). The presence of introduced weed species lowers the biodiversity value of the proposed clearing area. Care must be taken to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested areas. The risk of spreading weed species can be mitigated by imposing a condition for the purpose of weed management.

A fauna survey was conducted by Biota over the Western Range study area in 2009 (Biota, 2010). This survey identified a total of 101 vertebrate species, consisting of 37 herpetofauna, 47 avifauna and 17 mammal species (Biota, 2010). These results are within the range of fauna species usually found in the region and therefore do not represent particularly high fauna diversity (Biota, 2010).

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

Methodology Biota (2009)
Biota (2010)
CALM (2002)
GIS Database
- IBRA WA (Regions - Subregions)

(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 may be at variance to this Principle

Fauna surveys of the Western Range area were conducted by Biota in June and October 2009 (Biota, 2010). These surveys included a desktop survey, a Short Range Endemic (SRE) species survey, fauna trapping and opportunistic observations (Biota, 2010).

The results of these fauna surveys indicates that the following fauna habitats are likely to be found within the application area (Biota, 2010):

Acacia sp. over *Triodia wiseana* hummock grassland on calcrete.

- **Calcrete spur.**
Acacia tetragonophylla open shrubland over *Triodia wiseana* hummock grassland.

Grevillea sp. and Acacia sp. over *Triodia epactia* on rocky spur.

- **Marra Mamba rocky slope.**
Acacia ancistrocarpa scattered shrubs over *Triodia epactia* hummock grassland.
- **Colluvial rocky spur**
Grevillea berryana scattered shrubs over *Triodia epactia* hummock grassland.

Mulga and Snakewood on clay plain.

- **Colluvial clay plain.**
Acacia aneura low open woodland over *Acacia xiphophylla* tall open shrubland over *Triodia wiseana* hummock grassland.
- **Clay broad floodplain.**
Acacia aneura low open woodland over *Acacia tetragonophylla* open shrubland.

Shrubland and *Triodia epactia* in rocky gorge.

- **Brockman iron rocky gorge.**
Corymbia ferritcola low open woodland over *Acacia pruinocarpa* tall open shrubland over mixed open shrubland over *Triodia epactia* open hummock grassland.
- **Weeli Wolli rocky gorge.**
Acacia aneura tall shrubland over mixed open shrubland over *Triodia epactia* open hummock grassland.

Acacia sp. over *Triodia epactia* hummock grassland on rocky range.

- **Brockman iron range.**
Acacia pruinocarpa tall open shrubland over *Triodia epactia* hummock grassland.

Biota (2010) reports that all these habitat types are well represented in the locality and within the wider region and are not of elevated conservation significance.

Biota (2010) has identified a number of potential SRE's occurring within the Western Range area during the fauna survey. However, Biota (2010) has concluded that these species are unlikely to be restricted to the Western Range study area and that the habitats they are found in are widespread throughout the Pilbara and Gascoyne bioregions.

Biota (2010) has reported that the following fauna species of conservation significance are likely to occur within the Western Range study area:

- Australian Bustard (*Ardeotis australis*) – (Priority 4);
- Western Pebble-mound Mouse (*Pseudomys chapmani*) (Priority 4);
- Ghost Bat (*Macroderma gigas*) – (Priority 4);
- Northern Quoll (*Dasyurus hallucatus*) – Schedule 1; and
- Rainbow Bee-eater (*Merops ornatus*) – (Migratory).

Of these species, the Australian Bustard, Western Pebble-mound Mouse, Ghost Bat and Rainbow Bee-eater were recorded within the survey area during the field surveys (Biota, 2010). The Northern Quoll is considered likely to occur as habitat capable of supporting this species occurs within the application area (Biota, 2010).

Based on the above, the proposed clearing may be at variance to this Principle.

The habitat types and land systems within the application area are reported by Biota (2010) as being widespread throughout the region. Therefore, conservation significant fauna would not be restricted to the application area. The proposed clearing may have localised impacts on individual fauna, however, the proposed clearing for mineral exploration is unlikely to have a significant impact on any fauna species or available habitat.

Methodology Biota (2010)

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

Comments **Proposal may be at variance to this Principle**

Biota conducted a flora and vegetation survey in 2009 across a large area of the Western Ranges that included the application area. This survey included a desktop search for Declared Rare Flora (DRF) and Priority Flora that could potentially occur within the survey area, in addition to field surveys (Biota, 2009). The Western Range study area was surveyed over three separate periods by Biota in 2009 (Biota, 2009). These surveys were conducted in June, September and October of 2009 (Biota, 2009). Survey methods included the following (Biota, 2009):

- vegetation types were described and mapped;
- survey quadrats were established;
- targeted searches for rare flora and weeds were conducted in all representative habitats as well as in habitats considered likely to support such flora; and
- voucher specimens of all flora not confidently known were collected for subsequent identification or confirmation in the Perth office.

No DRF species were recorded within the application area during the flora and vegetation survey (Biota, 2009). The following four Priority Flora species were recorded by Biota (2009) within the application area, although one is considered to be a misidentification:

- *Aluta quadrata* (Priority 1).
The Western Australian Herbarium (1998-) reports that this species is often found at the edge of creek beds, at the base of cliffs, in rocky crevices or near the crests of ridges. This species is found in the Paraburdoo locality and Biota (2009) reports that targeted searches for this species have failed to extend the known distribution of *Aluta quadrata* beyond the Paraburdoo locality. According to Biota (2009) this species is known from 142 records on the Western Range. Biota (2009) reports that this species warrants upgrading to DRF status, given that it is only known to occur over a 40 kilometre range, and most of the populations are within existing or proposed mining areas. Hamersley Iron (2010) states that an internal exclusion zone has been placed around known populations and disturbance to this species will be avoided. Impacts to this species can be mitigated by a Priority Flora management condition.
- *Goodenia* sp. East Pilbara (Priority 3).
The Western Australian Herbarium (1998-) reports that this species is generally found in red-brown clay soils and calcrete pebbles on low undulating plains and on swampy plains. Biota (2009) reports that there were four records of this species within the study area, however, it is considered that these plants were misidentified. Biota (2010) states that the taxonomy of a number of similar small *Goodenia* species has been refined since this survey and therefore, this species is thought by Biota (2009) to be *Goodenia pascua* which does not have a Priority rating. *Goodenia* sp. East Pilbara has several populations throughout the area. Given the above, the proposed clearing is unlikely to affect the conservation status of *Goodenia* sp. East Pilbara.

- *Ptilotus trichocephalus* (Priority 4).
The Western Australian Herbarium (1998-) reports that this species generally prefers sandy soils and is often found on colluvial plains. Biota (2010) reports that in the study area the species appears to be strongly associated with broad flat plains with a hard packed (not cracking) clay substrate and a surface littered with pebbles (a typical “gibber” plain). Records kept by the Western Australian Herbarium (1998) suggest that this species is not restricted to the application area and several other populations have been recorded within surrounding regions.
- *Sida* sp. Barlee Range (Priority 3).
This species is reported by the Western Australian Herbarium (1998-) as generally being found in skeletal red soil pockets on steep slopes. Biota (2009) reports that this species was found within the study area at the base of a rocky wall, which is typical habitat for this species. Biota (2009) states that this species had a relatively broad distribution through the southern Pilbara, extending into the northern Gascoyne bioregion, with collection locations including Paraburdoo, the Tom Price locality and Barlee Range. Given this the proposed clearing for mineral exploration is unlikely to affect the conservation status of this species.

Based on the above, the proposed clearing may be at variance to this Principle.

Methodology Biota (2009)
Hamersley Iron (2010)
Western Australian Herbarium (1998-)

(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 (TECs) or Priority Ecological Communities (PECs) within the area applied to clear (GIS Database). The nearest known PEC is located approximately 95 kilometres north-east of the application area (GIS Database).

Biota (2009) reports that no TECs or PECs were identified within the application area during the flora and vegetation survey.

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

Methodology Biota (2009)
GIS Database
- Threatened Ecological Sites

(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 and Gascoyne Interim Biogeographic Regionalisation of Australia (IBRA) bioregions (GIS Database). Shepherd (2007) reports that approximately 99.9% of the pre-European vegetation still exists within the Pilbara bioregion, whilst approximately 100% of the pre-European vegetation still exists within the Gascoyne bioregion (see table below). The vegetation within the application area is recorded as the following Beard Vegetation Associations (Shepherd, 2007):

Beard Vegetation Association 82: hummock grasslands, low tree steppe; Snappy Gum over *Triodia wiseana*;
Beard Vegetation Association 163: shrublands; *Eremophila* and *Cassia* dwarf scrub; and
Beard Vegetation Association 181: shrublands; Mulga and Snakewood scrub.

According to Shepherd (2007) approximately 100% of these vegetation associations remain within the bioregions (see table below).

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

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Pilbara	17,804,188	17,794,647	~99.9	Least Concern	~6.3
IBRA Bioregion - Gascoyne	18,075,218	18,075,218	~100	Least Concern	~1.9
Beard vegetation associations - State					

82	2,565,901	2,565,901	~100	Least Concern	~10.2
163	641,918	641,918	~100	Least Concern	0.0
181	1,697,291	1,697,291	~100	Least Concern	~2.4
Beard vegetation associations - Pilbara Bioregion					
82	2,563,583	2,563,583	~100	Least Concern	~10.3
Beard vegetation associations - Gascoyne Bioregion					
163	640,581	640,581	~100	Least Concern	0.0
181	1,632,078	1,632,078	~100	Least Concern	~1.7

* Shepherd (2007)

** Department of Natural Resources and Environment (2002)

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

Methodology Department of Natural Resources and Environment (2002)
Shepherd (2007)
GIS Database
- IBRA WA (Regions - Subregions)

(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 there are no permanent watercourses within the application area, however, there are numerous minor, ephemeral watercourses (GIS Database). These watercourses are only likely to flow following significant rainfall (Biota, 2009).

Based on the above, the proposed clearing is at variance to this Principle.

Vegetation descriptions provided by Biota (2009) indicate that Vegetation Units 9 and 10 are associated with these minor ephemeral watercourses. Furthermore, Biota (2009) reports that these vegetation associations are in very good to excellent condition with few weeds noted. A weed management condition would help maintain the quality of vegetation within these watercourses.

Biota (2009) reports that these vegetation associations are widespread throughout the region and are reasonably common locally which is supported by aerial imagery and available databases (GIS Database). Furthermore, the clearing of 98 hectares, scattered over 1726 hectares, for the purpose of widely spaced drill holes and tracks, is unlikely to have a significant impact on ephemeral watercourses and associated vegetation.

Methodology Biota (2009)
GIS Database
- Ashburton_2004_50cm - Orthomosaic - Landgate 2004
- Hydrography, linear

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

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

The application area has been mapped as occurring within the Newman and Table land systems (GIS Database).

Van Vreeswyk et al. (2004) reports that the Newman and Table land systems are generally not susceptible to erosion. Therefore, the clearing of native vegetation is unlikely to cause appreciable land degradation within these systems.

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 any conservation areas (GIS Database). The nearest Department of Environment and Conservation managed land is Karijini National Park located approximately 50 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 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 proposed clearing is not located within a Public Drinking Water Source Area (GIS Database).

There are no permanent watercourses or wetlands within the application area, however, there are numerous ephemeral watercourses (GIS Database). These watercourses only flow following significant rainfall (Biota, 2009).

Given the dispersive and temporary nature of the clearing (98 hectares within 1726 hectares for the purpose of drill holes and tracks), the proposed clearing is unlikely to have a significant impact on surface or underground water quality.

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

Methodology Biota (2009)

(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

There are numerous ephemeral watercourses within the application area (GIS Database).

Natural local flooding occurs seasonally in the Pilbara region as a result of cyclonic activity and sporadic thunderstorm activity (Hamersley Iron, 2010). The ephemeral watercourses within the application area would experience natural seasonal flooding from the runoff of surface water during and following significant rainfall events (Hamersley Iron, 2010). The proposed clearing of 98 hectares of native vegetation, dispersed over a 1726 hectare area, is unlikely to increase the incidence or intensity of flood events.

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

Methodology Hamersley Iron (2010)
GIS Database
- Hydrography, linear

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

Comments

There are three Native Title claims (WC96/061, WC97/043 and WC98/069) over the area under application (GIS Database). These claims have been registered within the Native Title Tribunal on behalf of the claimant groups, however, the 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 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.

It is noted that the proposed clearing may impact on a protected matter under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*. The proponent may be required to refer the project to the (Federal) Department of the Environment, Water, Heritage and the Arts (DEWHA) for environmental impact assessment under the *EPBC Act*. The proponent is advised to contact the DEWHA for further information regarding notification and referral responsibilities under the *EPBC Act*.

The clearing permit application was advertised 31 May 2010 by the Department of Mines and Petroleum, inviting submissions from the public. There were no submissions received in relation to the application.

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

4. Assessor's comments

Comment

This application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986, and the proposed clearing is at variance to Principle (f), may be at variance to Principles (b) and (c), is not likely to be at variance to Principles (a), (d), (g), (h), (i) and (j) and is not at variance to Principle (e).

5. References

- Biota (2009) Western Range Phase 1: Vegetation and Flora Summary Report. Unpublished report. Biota Environmental Sciences Pty Ltd, Western Australia.
- Biota (2010) Western Range Phase 1 Fauna Survey. Unpublished report. Biota Environmental Sciences Pty Ltd, Western Australia.
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- 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.
- Hamersley Iron (2010) Clearing Permit Application Supporting Documentation. Hamersley Iron Pty Ltd.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Shepherd, D.P. (2007) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.
- Van Vreeswyk, A.M.E., Payne, A.L., Hennig, P. and Leighton, K.A. (2004) An Inventory and Condition Survey of the Pilbara Region, Western Australia. Department of Agriculture, Western Australia.
- Western Australian Herbarium (1998-) FloraBase ? The Western Australian Flora. Department of Environment and Conservation. <http://florabase.dec.wa.gov.au/>.

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.