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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2813/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Hamersley Iron Pty Ltd**

1.3. Property details

Property: Mineral Lease 4SA (AML 70/4)
Iron Ore (Hamersley Range) Agreement Act 1963
Local Government Area: Shire of Ashburton
Colloquial name: Tom Price Overland Conveyor Transfer and Western Turner Syncline B1 Water Pipeline

1.4. Application

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

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description
Vegetation within the application areas has been mapped at a 1:250,000 scale as the following Beard Vegetation Associations: (Shepherd et al., 2001; GIS Database):

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

- 567: Hummock grasslands, shrub steppe; mulga & kanji over soft spinifex & *Triodia basedowii*.

Biota Environmental Sciences were commissioned by Hamersley Iron Pty Ltd to undertake a flora and vegetation assessment for the Overland Conveyor Transfer application area and the B1 Water Pipeline application area. Biota Environmental Sciences (2008) has described the vegetation types that were identified within the two application areas.

Vegetation types in the Overland Conveyor Transfer application area:

1. AciCEc: *Acacia citrinoviridis* tall open scrub over *Cenchrus ciliaris* tussock grassland in a creekline;

2. AanArAprTbrERlm: *Acacia* aff. *aneura* (narrow fine veined), *A. rhodophloia*, *A. pruinocarpa* tall closed scrub over *Scaevola acacioides, Dodonaea pachyneura* scattered shrubs over *Triodia brizoides* open hummock grassland with *Eriachne mucronata* very open tussock grassland on rocky hills; and

3. AprCdElEgAhAmSsTw: *Acacia pruinocarpa, Corymbia deserticola, Eucalyptus leucophloia* subsp. *leucophloia, E. gamophylla* low open woodland over *Acacia hamersleyensis, A. marramamba, Stylobasium spathulatum* open shrubland over *Triodia wiseana* hummock grassland on rocky hills.

In addition, approximately 8% of the Overland Conveyor Transfer area (at the westernmost and easternmost ends) is currently cleared, or has been historically cleared for infrastructure and now supports an open cover of regenerating but often weedy vegetation. This area has been described by Biota Environmental

Clearing Description
Hamersley Iron Pty Ltd has applied to clear up to 6 hectares of native vegetation for an overland conveyor transfer and the water pipeline (Hamersley Iron Pty Ltd, 2008; Biota Environmental Sciences, 2008). The Assessing Officer notes that the two application areas are situated approximately 21 kilometres apart (GIS Database; Hamersley Iron Pty Ltd, 2008). Hamersley Iron Pty Ltd (2008) has provided the following description which outlines the types of activities associated with the Overland Conveyor Transfer and B1 Water Pipeline application areas.

1. Overland Conveyor Transfer Application Area: Approximately 1 hectare within an application area of 5.7 hectares is required to be disturbed for the purpose of clearing an access track (where required), geotechnical drilling and test-pitting along the centreline of the conveyor. Ground disturbance for the access track will total approximately 0.8 hectares, whilst ground disturbance for geotechnical drilling and test pitting will total approximately 0.2 hectares (Hamersley Iron Pty Ltd, 2008).

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
Vegetation condition was assessed by Biota Environmental Sciences (2008).

Sceinces (2008) as '**Disturbed areas**'.

Vegetation types in the B1 Water Pipeline application area:

1. AprTw: *Acacia pruinocarpa* low open woodland over *Triodia wiseana* hummock grassland;

2. AprAciAanTw: *Acacia pruinocarpa, A. citrinoviridis, A.* aff. *aneura* (narrow fine veined) tall shrubland over *Triodia wiseana* hummock grassland;

3. AciAprPlTaffe: *Acacia citrinoviridis, A. pruinocarpa* low woodland over *Petalostylis labicheoides* tall open shrubland over *Triodia* aff. *epactia* (small lemma form) hummock grassland;

4. AxAanTspp: *Acacia xiphophylla, A. aneura* low open woodland to low open forest over *Triodia* species hummock grassland;

5. ElAarAatAbAmGbTw: *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees to low open woodland over combinations of *Acacia arida*, *A. atkinsiana, A. bivenosa, A. maitlandii, Grevillea berryana* open shrubland to open heath over *Triodia wiseana* hummock to closed hummock grassland;

6. ElAhAmTw: *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees over *Acacia hamersleyensis, A. maitlandii* tall open scrub over *Triodia wiseana* hummock grassland; and

7. TOC: Third Order Creeklines. This vegetation type encompasses a wide range of minor flowlines that are, in general, higher in the landscape. These creeklines have highly variable species composition and cover and thus are very difficult to interpret and extrapolate from aerial photographs to a high degree of accuracy. Time restrictions in the field precluded ground truthing each flowline therefore it was necessary to amalgamate their description to facilitate mapping (Biota Environmental Sciences, 2008).

2. B1 Water Pipeline Application Area: A potable water pipeline is proposed between a production bore at B1 to the exploration camp at Section 10. The application area covers a distance of approximately 11 kilometres in length and varies in width between approximately 10 metres to 100 metres (Hamersley Iron Pty Ltd, 2008; GIS Database). Clearing is required for a 5 metre wide access pathway alongside an existing track to allow for a water supply pipeline to be laid between existing bores at B1 and the proposed exploration camp. Four possible bore sites are located within the application area, however, one will be chosen once hydrological investigations are complete. Hamersley Iron Pty Ltd proposes to clear up to 5 hectares for the B1 water pipeline (Hamersley Iron Pty Ltd, 2008).

Vegetation will be cleared by a bulldozer with its blade down. The vegetation and topsoil will be collected and stockpiled for use in future rehabilitation. Rehabilitation will be undertaken following the decommissioning of the associated infrastructure (Hamersley Iron Pty Ltd, 2008).

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 areas are located within the Hamersley subregion of the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion which encompasses an area of 17,804,164 hectares (GIS database; Shepherd et al., 2001). The Hamersley subregion is characterised by sedimentary ranges and plateaux, dissected gorges, low Mulga woodlands over bunch grasses in valley floors and Eucalyptus woodlands over *Triodia* spp. on skeletal soils of the ranges (Kendrick, 2001). The mountain tops, gorges and upper slopes throughout the subregion provide refuge from fire for a large number of restricted flora species and native fauna species and the extensive ranges comprise of a high diversity of *Acacia, Triodia, Ptilotus, Corymbi*a and *Sida* species (Kendrick, 2001).

Biota Environmental Sciences (2008) identified three vegetation types within the Overland Conveyor Transfer application area, and mapped approximately 8% of the application area as 'Disturbed areas' which were currently cleared, or have been historically cleared for infrastructure and now support an open cover of regenerating but often weedy vegetation. Two broad terrestrial fauna habitat types were identified within the Overland Conveyor Transfer application area and these are considered common throughout the Hamersley subregion (Biota Environmental Sciences, 2008).

A total of 205 native flora taxa from 105 genera belonging to 44 families were recorded during the survey of the broader Overland Conveyor Transfer study area which included the application area (Biota Environmental Sciences, 2008). It is considered likely that the floristic diversity of the application area would comprise of a subset of the species recorded within the broader study area (Biota Environmental Sciences, 2008). Whilst no Declared Rare Flora (DRF) or Priority Flora were recorded within this application area, the DRF species *Lepidim catapycnon* and the Priority Flora species, *Indigofera ixocarpa* (Priority 2) and *Sida* sp. Barlee Range (S. van Leeuwen 1642) (Priority 3), were recorded within the 70 metre buffer surrounding the application area (Biota Environmental Sciences, 2008).

Biota Environmental Sciences (2008) identified seven vegetation types, and a total of 70 native flora taxa from 37 genera and 22 families within the B1 Water Pipeline application area. No Declared Rare Flora or Priority Flora species were recorded within the application area, or within the survey buffer area (Biota Environmental Sciences, 2008). The seven vegetation types recorded within the B1 Water Pipeline application area comprised of four basic fauna habitats, all of which are considered common throughout the Hamersley subregion (Biota Environmental Sciences, 2008).

None of the vegetation types identified within either of the application areas comprise of Threatened Ecological Communities or Priority Ecological Communities (Biota Environmental Sciences, 2008). The vegetation types and fauna habitats recorded within the application areas are typical of such habitats in the locality (Biota Environmental Sciences, 2008), and are considered common and widespread within similar landforms throughout the Pilbara. In addition, the total numbers of species recorded from the application areas are not considered to represent areas of high species richness (Biota Environmental Sciences, 2008).

Two introduced species (Weeds), *Acetosa vesicaria* (Ruby Dock) and *Cenchrus ciliaris* (Buffel Grass), were recorded within the Overland Conveyor Transfer study area (Biota Environmental Sciences, 2008). No introduced species were recorded within the B1 Water Pipeline study area (Biota Environmental Sciences, 2008). Weeds have the potential to adversely impact on the diversity within the application areas as they compete for resources with native flora species. The disturbance of soil may promote weed growth, and there is a risk that the movement of contaminated soil and clearing equipment throughout and between the project areas may cause the spread of weed species. The Assessing Officer recommends that should the permit be granted, conditions be imposed on the permit for the purpose of weed management.

The vegetation communities recorded within the application areas are not considered to represent an area of outstanding biodiversity. The proposed clearing activities within the Overland Conveyor Transfer and B1 Water Pipeline application areas are not likely to impact on vegetation that would be considered as rare, geographically restricted or of significant conservation value.

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

Methodology

Biota Environmental Sciences (2008)
Hamersley Iron Pty Ltd (2008)
Kendrick (2001)
GIS Database:
- Interim Biogeographic Regionalisation of Australia
- Interim Biogeographic Regionalisation of Australia (subregions)
- Pre-European Vegetation
- Clearing Instruments

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

Comments

Proposal is not likely to be at variance to this Principle

A fauna habitat assessment was undertaken by Biota Environmental Sciences during the flora and vegetation survey of the application areas.

Prior to undertaking the field assessment, Biota Environmental Sciences conducted a search of the Western Australian Museum's online database between the coordinates 22.239°S, 117.133°E and 23.139°S, 118.111°E to identify fauna species that may occur within the application areas (Biota Environmental Sciences, 2008). A search of the Department of Environment and Conservation's (DEC) Threatened Fauna Database was also undertaken between the coordinates 22.33766°S, 117.0959°E and 23.11563°S, 118.0685°E to identify conservation significant fauna that may occur within the application areas (Biota Environmental Sciences, 2008). A search of the Protected Matters Database was also carried out to identify species listed under the *Environment Protection and Biodiversity Conservation Act 1999* that may potentially exist within the application areas.

Based on the results of the DEC Threatened Fauna Database search, the following species of conservation significance have the potential to occur within the application areas (Biota Environmental Sciences, 2008):

- Northern Quoll (*Dasyurus hallucatus*): Schedule 1 (Fauna that is rare or is likely to become extinct) of the *Wildlife Conservation (Specially Protected Fauna) Notice 2008*; listed as 'Endangered' under the *Environment Protection and Biodiversity Conservation Act 1999*;

- Orange Leaf-nosed Bat (*Rhinonicteris aurantius*): Schedule 1 (Fauna that is rare or is likely to become extinct) of the *Wildlife Conservation (Specially Protected Fauna) Notice 2008*; listed as 'Vulnerable' under the *Environment Protection and Biodiversity Conservation Act 1999*;

- Pilbara Olive Python (*Liasis olivaceus barroni*): Schedule 1 (Fauna that is rare or is likely to become extinct) of the *Wildlife Conservation (Specially Protected Fauna) Notice 2008*; listed as 'Vulnerable' under the *Environment Protection and Biodiversity Conservation Act 1999*;

- Peregrine Falcon (*Falco Peregrinus*): Schedule 4 (Other specially protected fauna) of the *Wildlife Conservation (Specially Protected Fauna) Notice 2008*;

- *Ramphotyphlops ganei* : DEC Priority 1;

- Long-tailed Dunnart (*Sminthopsis longicaudata*): DEC Priority 4;

- Ghost Bat (*Macroderma gigas*): DEC Priority 4;

- Lakeland Downs Mouse (*Leggadina lakedownensis*): DEC Priority 4;

- Western Pebble-mound Mouse (*Pseudomys chapmani*): DEC Priority 4;

- *Notoscincus butleri*: DEC Priority 4;

- Australian Bustard (*Ardeotis australis*): DEC Priority 4;

- Bush Stone-curlew (*Burhinusgrallarius*): DEC Priority 4;

- Star Finch (western) (*Neochmia ruficauda subclarescens*): DEC Priority 4;

- Fork-tailed Swift (*Apus pacificus*): Migratory; and

- Rainbow Bee-eater (*Merops ornatus*): Migratory.

For the Overland Conveyor Transfer application area, Biota Environmental Sciences (2008) identified three vegetation types, and state that these constitute two broad terrestrial fauna habitats. These are:

1. Creeklines and narrow loamy floodplains vegetated with tall *Acacia citrinoviridis* scrub over **Cenchrus ciliaris* (Buffel Grass); and
2. Rocky hills and stony slopes vegetated with mixed (*Acacia*, *Corymbia* and *Eucalyptus* spp.) open woodland over mixed scattered shrubs over open *Triodia* hummock grasslands.

From the seven vegetation types that were recorded within the B1 Water Pipeline application area, four basic habitat types were identified by Biota Environmental Sciences (2008). These are:

1. Rocky or stony hillcrests vegetated with scattered Eucalypts over mixed *Acacia* open shrubland to open heath over *Triodia*;
2. Stony loam flats and low hill slopes vegetated with *Acacia* woodlands (sometimes with scattered eucalypts) over *Triodia* species;
3. Stony clay flats with *Acacia xiphophylla* and *Acacia aneura* over *Triodia*; and
4. Creeklines and loamy floodplains vegetated with *Acacia citrinoviridis, A. pruinocarpa* low woodlands or mixed *Acacia* scrub over *Triodia*.

All of the fauna habitats that have been identified within the application areas are considered common and widespread throughout the Pilbara region, and are not considered to represent critical habitat for any of the fauna species of conservation significance listed above (Biota Environmental Sciences, 2008).

Hamersley Iron Pty Ltd has applied to clear a total of 6 hectares, and all clearing will occur within the narrow, linear application areas which vary between 10 metres and 100 metres in width (GIS Database; Hamersley Iron Pty Ltd, 2008). The actual clearing within the Overland Conveyor Transfer and the B1 Water Pipeline application areas is for access tracks, geotechnical drill pads and test-pits (Hamersley Iron Pty Ltd, 2008), and as a result clearing will be restricted to narrow corridors or small localised areas. Although some fauna species may utilise the vegetation within the application areas from time to time, any displaced fauna are likely to relocate into surrounding areas immediately adjacent to the disturbed areas. The proposed clearing activities are unlikely to impact on significant or restricted habitat for any fauna species.

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

Methodology

Biota Environmental Sciences (2008)
Hamersley Iron Pty Ltd (2008)
GIS Database:
- Clearing Instruments

(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 datasets there are no known records of Declared Rare Flora (DRF) or Priority Flora species within the application areas (GIS database).

Flora and vegetation surveys of the application areas were undertaken by botanists from Biota Environmental Sciences. The B1 Water Pipeline application area was surveyed between July and October 2007 as part of the broader West Turner Syncline study area, whilst the Overland Conveyor Transfer application area was surveyed on 8 May 2008 (Biota Environmental Sciences, 2008).

No DRF or Priority Flora species were recorded within the application areas during the surveys (Biota Environmental Services, 2008).

Biota Environmental Sciences (2008) report that a population of 20 individuals of the DRF species, *Lepidium catapycnon*, was recorded approximately 20 metres south-west of the Overland Conveyor Transfer application area (GIS Database). An area surrounding this population has been nominated on Rio Tinto's Geographic Information System (GIS) mapping system as an 'Exclusion Zone' in order to prevent any inadvertent disturbance this population (Biota Environmental Sciences, 2008). Given this population was recorded outside of the Overland Conveyor Transfer application area, the proposed clearing activities are not likely to impact this population of *Lepidium catapycnon*.

Two Priority Flora species, *Indigofera ixocarpa* (Priority 2) and *Sida* sp. Barlee Range (S. van Leeuwen 1642) (Priority 3), were also recorded during the survey of the Overland Conveyor Transfer study area (Biota Environmental Sciences, 2008). These populations were recorded outside of the Overland Conveyor Transfer application area and will not be impacted on by the proposed clearing activities.

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

Methodology Biota Environmental Sciences (2008)
GIS Database:
- Declared Rare and Priority Flora List
- Clearing Instruments

(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's) within the application areas (GIS database; Biota Environmental Sciences, 2008). The nearest known TEC is located approximately 37 kilometres north-east of the B1 Water Pipeline application area (GIS database). Given the distance between the application areas and the nearest known TEC, the proposed clearing is not likely to impact on the conservation of that TEC.

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

Methodology Biota Environmental Sciences (2008)
GIS Database:
- Threatened Ecological Communities

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

Comments

Proposal is not at variance to this Principle

The clearing application area falls within the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) region in which approximately 99.9% of the pre-European vegetation remains (see table) (GIS database; Shepherd et al., 2001).

The vegetation of the clearing application area has been mapped as Beard Vegetation Association 82: Hummock grasslands, shrub steppe; *Grevillea refracta* & Hakea over soft Spinifex and 567: Hummock grasslands, shrub steppe; mulga & kanji over soft spinifex & *Triodia basedowii* (GIS Database, Shepherd et al., 2001). According to Shepherd et al., (2001) approximately 100% of Beard vegetation association remains at both the state and regional level (see table).

According to the Bioregional Conservation Status of Ecological Vegetation Classes, the conservation status for the Pilbara Bioregion and Beard Vegetation Association 82 and 567 is of “Least Concern” (Department of Natural Resources and Environment, 2002) (see table).

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

	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	~99.9	Least Concern	6.3
Beard veg assoc. – State					
82	2,565,930	2,565,930	~100	Least Concern	10.2
567	777,517	777,517	~100	Least Concern	22.3
Beard veg assoc. – Bioregion					
82	2,563,610	2,563,610	~100	Least Concern	10.2
567	776,833	776,833	~100	Least Concern	22.3

* Shepherd et al. (2001)
** Department of Natural Resources and Environment (2002)

The vegetation under application is not a remnant of vegetation in an area that has been extensively cleared.

Based on the above, the proposal 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 (subregions)
- Pre-European Vegetation

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments

Proposal is at variance to this Principle

The application areas are not associated with any permanent wetlands or watercourses (GIS Database). Geographic information and aerial imagery indicates that numerous ephemeral watercourses and drainage lines intercept the application area (GIS Database).

For both the Overland Conveyor Transfer and B1 Water Pipeline application areas Biota Environmental Sciences (2008) has mapped four vegetation types that are considered as growing in association with a watercourse. These are:

1. Vegetation of Broad Drainage Areas:
(i) AprAciAanTw: *Acacia pruinocarpa*, *A. citrinoviridis*, *A. aneura* (narrow fine veined; site 1259) tall shrubland over *Triodia wiseana* hummock grassland.

2. Vegetation of Creeklines:
(i) AciCEc: *Acacia citrinoviridis* tall open scrub over *Cenchrus ciliaris* tussock grassland;
(ii) AciAprPlTaffe: *Acacia citrinoviridis*, *A. pruinocarpa* low woodland over *Petalostylis labicheoides* tall open shrubland over *Triodia epactia* hummock grassland; and
(iii) Third Order Creeklines: This vegetation type encompasses a wide range of minor flowlines.

Biota Environmental Sciences (2008) considers these vegetation communities to be typical of creekline habitats located in this section of the Hamersley subregion.

As Biota Environmental Sciences (2008) has recorded watercourses within the application area, the proposed clearing is at variance to this Principle. However, these watercourses are minor, natural drainage channels that are widespread across the Pilbara landscape (GIS database), and are responsible for quickly dispersing floodwaters after significant rainfall events.

Hamersley Iron Pty Ltd (2008) proposes to clear up to 1 hectare within the Overland Conveyor Transfer application area, and up to 5 hectares within the B1 Water Pipeline application area. All of the clearing activities will be relatively minor, and will occur within a narrow corridor where the pipeline or access tracks pass through the abovementioned vegetation types. The proposed clearing is unlikely to significantly impact on vegetation communities growing in association with these minor ephemeral creek systems.

Methodology Biota Environmental Sciences (2008)

Shepherd et al. (2001)
GIS Database:
- Hydrography, linear_1

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

Comments

Proposal is not likely to be at variance to this Principle

According to the Department of Agriculture's Technical Bulletin No. 92 "An inventory and condition survey of the rangelands of the Pilbara Region, Western Australia", the application areas are characterised by the Newman and Platform Land Systems (Van Vreeswyk et al., 2004).

- The Newman Land System consists of rugged jaspilitic ranges, plateaux, ridges and mountains which support hard spinifex grasslands that characterise and typify much of the Pilbara (Van Vreeswyk et al., 2004). The soils types within the Newman Land System are likely to consist of stony soils, red shallow loams and red loamy earths with mantles of abundant to very abundant pebbles and cobbles of ironstone (Van Vreeswyk et al. 2004). These soils are likely to demonstrate high resistance to erosion due to the stony nature of the surface materials.

- The Platform Land System occurs as dissected slopes and raised plains supporting hard Spinifex grasslands (Van Vreeswyk et al., 2004). The landform units of the Platform Land System include stony upper plains, dissected slopes and drainage floors (Van Vreeswyk et al., 2004). The soil types consist of shallow, very stony reddish brown loams, cemented gravels and pebbles, and reddish brown loamy sands on drainage floors. The Platform Land System is not susceptible to erosion due to the stony nature of the surface materials (Van Vreeswyk et al., 2004).

For both the Platform and Newman Land System, there is likely to remain a low risk of erosion for areas within and adjoining the application area.

The application areas experience mean annual rainfall of approximately 400 millimetres and mean annual evaporation of approximately 3400 millimetres (GIS Database). Given the low rainfall to high evaporation rate for the application area, the narrow corridor of proposed clearing within both application areas is unlikely to significantly increase water infiltration into the soil, or alter groundwater levels. The proposed clearing is unlikely to cause water logging on or off site.

The application areas are situated within the Ashburton River Catchment which covers a total area of approximately 7,877,743 hectares (GIS Database). Groundwater salinities within the application areas and adjoining areas have been recorded in the range of 500- 1,000 milligrams/Litre Total Dissolved Solids (GIS Database). With consideration to the low rainfall to high evaporation rate for the application area, as well as the size of the Ashburton River Catchment, the proposed clearing of native vegetation is unlikely to significantly increase groundwater recharge which could otherwise lead to significant rises to ground water levels. The proposed clearing is unlikely increase land salinisation either on-site or off-site.

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
- Clearing Instruments
- Hydrography, linear_1
- Groundwater Salinity, Statewide
- Hydrographic Catchments – Catchments

(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 areas are not located within a Department of Environment and Conservation managed conservation area (GIS Database; Biota Environmental Sciences, 2008). The nearest conservation area is Karijini National Park which is situated approximately 15 kilometres east of the Overland Conveyor Transfer application area (GIS database). Based on the distance between the proposal and the nearest conservation area, the proposed clearing is not likely to impact on the conservation values of Karijini National Park.

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

Methodology

Biota Environmental Sciences (2008)
GIS Database:
- CALM Managed Lands and Waters

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

Comments

Proposal is not likely to be at variance to this Principle

The application areas are not associated with any permanent wetlands or watercourses (GIS Database). The ephemeral watercourses located within the application areas are likely to only flow for short periods following significant rainfall. The land systems associated with the application areas demonstrate high resistance to erosion (Van Vreeswyk et al., 2004), thereby reducing the risk of sediment export which may result in sedimentation and turbidity in any nearby watercourses. The proposed clearing is unlikely to cause deterioration in the quality of surface water in the local area.

The application areas are not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The nearest PDWSA is the Millstream Water Reserve which is located approximately 40 kilometres north of the application areas. Given the distance separating the application areas and the nearest water supply area, the proposed clearing is unlikely to impact on the quality of the Millstream Water Reserve.

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:
- Public Drinking Water Source Areas (PDWSAs)
- Hydrography, linear_1

(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 areas are located within the Ashburton River catchment which occupies a total area of approximately 7,877,743 hectares (GIS Database). Local flooding can be expected to occur seasonally in the Pilbara, especially after significant rainfall triggered by cylconic activity and sporadic thunderstorms. Numerous ephemeral watercourses are distributed throughout the catchment, and these are responsible for quickly dispersing floodwaters after significant rainfall events, thereby reducing peak flood heights (GIS database).

Hamersley Iron Pty Ltd has applied to clear up to 6 hectares within two application areas which total approximately 20 hectares (Hamersley Iron Pty Ltd, 2008; GIS Database). The proposed clearing is unlikely to impact on the drainage patterns within the Ashburton River catchement, or local area.

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

Methodology

Hamersley Iron Pty Ltd (2008)
GIS Database:
- Hydrographic Catchments - Catchments
- Hydrography, linear_1

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

Comments

There is one native title claim over the areas under application; (WC97/089) (GIS Database). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group (GIS Database). 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*.

There are no registered Sites of Aboriginal Significance within the areas applied to clear (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

One direct interest submission was received during the public submission period, however, no objections were raised.

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 licence or approvals are required for the proposed works.

Methodology

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

4. Assessor's comments

Comment

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

Should the permit be granted, it is recommended that conditions be imposed on the permit for the purposes of weed management, recording areas cleared and reporting against the permit conditions.

5. References

Biota Environmental Sciences (2008). West Turner Syncline - Overland Conveyor Transfer and B1 Water Pipeline Areas: Native Vegetation Clearing Permit Report, Prepared for Rio Tinto Iron Ore, Prepared by Biota Environmental Sciences, September 2008.

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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:
(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.