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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2619/1
Permit type: Purpose Permit

1.2. Proponent details

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

1.3. Property details

Property: Miscellaneous Licence 47/234
Local Government Area: Shire of Ashburton
Colloquial name: Marandoo Camp Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
55		Mechanical Removal	Camp Construction

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 1:250,000 scale for the whole of Western Australia. Three Beard Vegetation Associations have been mapped within the application area (GIS Database; Shepherd et al., 2001):

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

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

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

The application area was surveyed by Biota Environmental Sciences staff between 25 and 28 April 2008 (Biota Environmental Sciences, 2008). The following vegetation types were identified within the application area.

ElAmTw: *Eucalyptus leucophloia* scattered low trees over *Acacia maitlandii* shrubland over *Triodia wiseana* hummock grassland on the low stony hills of the Newman Land System along the north-western section of the study area (approximately 30.16 hectares);

AanAprTmTw: *Acacia aneura, A. pruinocarpa* low open woodland over *Triodia melvillei, T. wiseana* hummock grassland on the broad plains of the Boolgeeda Land System which dominate the study area (approximately 175.85 hectares);

EvAciTHt: *Eucalyptus victrix* low open woodland over *Acacia citrinoviridis* tall open scrub over *Themeda triandra* open tussock grassland along the creekline which runs through the centre of the study area, comprising part of the Jurrawarrina Land System (approximately 1.94 hectares); and

AanTHt: *Acacia aneura* low open forest over *Themeda triandra* tussock grassland on plains fringing the above creekline (approximately 4.09 hectares) (Biota Environmental Sciences, 2008).

Seven alien weed species were recorded within the application area (Biota Environmental Sciences, 2008). These were: Bipinnate Beggartick (*Bidens bipinnata*), Ulcardo Melon (*Cucumis melo* subsp. *agrestis*), Spiked Malvastrum (*Malvastrum americanum*), Mimosa Bush (*Vachellia farnesiana*), Birdwood Grass (*Cenchrus setiger*), Awnless Barnyard Grass (*Echinochloa colona*) and Native Thornapple (*Datura leichhardtii*).

Clearing Description The applicant has applied to clear up to 55 hectares of native vegetation within a 220 hectare area for the purpose of establishing temporary camp facilities.

The clearing of the application area is required for the placement of buildings and infrastructure for the proposed construction camp and village (Biota Environmental Sciences, 2008).

Clearing of the application area shall be carried using a bulldozer and grader for large areas, front end loader and bobcat for smaller areas and an articulated dump truck for the relocation of overburden (Biota Environmental Sciences, 2008).

Vegetation Condition	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994) To Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).
Comment	The vegetation condition was derived from a vegetation survey conducted by Biota Environmental Sciences (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 area occurs within the Hamersley (PIL3) sub-region of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This sub-region is characterised by sedimentary ranges and plateaux, dissected by gorges (CALM, 2001). At a broad scale, vegetation can be described as Mulga low woodlands over bunch grasses on fine textured soils in valley floors and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils of the ranges (CALM, 2001).

Karijini National Park comprises a complete north-south transverse section of the Hamersley Ranges (Australian Heritage Database, 2009). Karijini National Park shows considerable biological diversity and is especially rich in species of the genus acacia, with forty-six of the fifty-four acacia species which occur in the Pilbara region (Australian Heritage Database, 2009). Many flora and fauna species of special significance occur within Karijini National Park. The area is scenically outstanding and the landscape is characterised by naturalness, ruggedness and diversity (Australian Heritage Database, 2009). The proposed clearing area is approximately 1.2 kilometres from the boundary of Karijini National Park at its nearest point (GIS Database). Karijini National Park is listed on the Register of the National Estate as an Environmentally Sensitive Area as it is a representative example of the Hamersley Ranges enhanced by most of the area being relatively unmodified by pastoralism or large scale mining operations (Australian Heritage Database, 2009).

A vegetation survey of the application area and surrounding vegetation identified four intact vegetation types within the application area (Biota Environmental Sciences, 2008). During the vegetation survey, 183 flora species from 100 genera belonging to 39 families were recorded (Biota Environmental Sciences, 2008). Poaceae (40), Mimosaceae (17) and Malvaceae (15) families are particularly species rich and diverse within the application area (Biota Environmental Sciences, 2008). The number of flora species recorded within each of the application areas is considered diverse. However, this is considered typical of the floristic diversity for similar landform features which are widespread throughout the Pilbara region.

The proposed clearing area is known to contain three Priority Flora species: *Josephinia* sp. Marandoo (P1), *Calotis latiuscula* (P3) and *Goodenia nuda* (P3) (Biota Environmental Sciences, 2008). The presence of Priority Flora within the proposed clearing area increases its biodiversity significance; however Priority Flora were found in small numbers. According to Shepherd (2007) approximately 100% of the Beard Vegetation Associations within the application arae remain within the Pilbara bioregion, therefore it is not expected that the proposed clearing will threaten the conservation status of any Priority Flora species.

Seven alien weed species were recorded within the application area (Biota Environmental Sciences, 2008). These were: Bipinnate Beggartick (*Bidens bipinnata*), Ulcardo Melon (*Cucumis melo* subsp. *agrestis*), Spiked Malvastrum (*Malvastrum americanum*), Mimosa Bush (*Vachellia farnesiana*), Birdwood Grass (*Cenchrus setiger*), Awnless Barnyard Grass (*Echinochloa colona*) and Native Thornapple (*Datura leichhardtii*). Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. This in turn can lead to greater rates of infestation and further loss of biodiversity if the area is subject to repeated fires. None of these species are listed as a 'Declared Plant' species under the *Agriculture and Related Resources Protection Act 1976* by the Department of Agriculture and Food (DAFWA). Should the permit be granted, it is recommended that appropriate conditions be imposed on the permit for the purpose of weed management.

An area search of the Department of Environment and Conservation's online fauna database conducted by the assessing officer suggests that the application area is diverse in reptile species (DEC, 2009). The database search found 76 reptile species as potentially occurring within the application area, or within a 20 kilometre radius of the application area. The vegetation communities within the application area are not likely to be considered as rare, geographically restricted or of significant conservation value. The vegetation communities and potential fauna habitats within the application area are considered common within the Pilbara region, and are unlikely to be of higher biodiversity than the surrounding areas. The proposed clearing is unlikely to have a significant impact on the biological diversity of the region, or comprise of a high level of biological diversity.

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

Methodology

Australian Heritage Database (2009)
Biota Environmental Sciences (2008)
CALM (2001)

DEC (2009)
GIS Database
- Interim Biogeographic Regionalisation of Australia

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

Comments

Proposal is not likely to be at variance to this Principle

The assessing officer has conducted a search of the Department of Environment and Conservation's online fauna database comprising a 20 kilometre radius around the application area.

This search identified 4 Amphibian, 21 Mammalian, 39 Avian and 76 Reptilian species that may occur within the application area (DEC, 2009). Of these, the following species of conservation significance have the potential to occur within the application area:
Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*: Northern Quoll (*Dasyurus hallucatus*), Pilbara Olive Python (*Liasis olivaceus* subsp. *barroni*);
P4 - DEC Priority Fauna List: Bush Stone-curlew (*Burhinus grallarius*), Short-tailed Mouse (*Leggadina lakedownensis*) and the Western Pebble-mound Mouse (*Pseudomys chapmani*).

Biota (2008) conducted a desktop fauna search of the following online databases:

- Department of Environment and Conservation's (DEC) Threatened and Priority Fauna Database;
- Western Australian Museum (WAM) FaunaBase;
- *Environment Protection and Biodiversity Conservation (EPBC) ACT 1999* Protected Matters Database;
- DEC Pilbara Biological Survey Database; and
- Biota internal database (Biota Environmental Sciences, 2008).

In addition to those species listed above, the following fauna species of conservation significance were identified through this desktop search:
Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*: Pilbara Orange Leaf-nosed Bat (*Rhinonicteris aurantius*);
Schedule 4 - Other Specially Protected Fauna' of the *Wildlife Conservation (Specially Protected Fauna) Act 1950*: Peregrine Falcon (*Falco peregrinus*); and
P4 - DEC Priority Fauna List: Australian Bustard (*Ardeotis australis*) (Biota Environmental Sciences, 2008).

A site visit was also conducted to ground-truth the available habitats within the application area (Biota Environmental Sciences, 2008).

A vegetation survey conducted by Biota Environmental Sciences (2008) recorded two habitat types as occurring within the application area:
1. Scattered *Corymbia* and *Acacia* spp. over tussock and hummock grasslands on loam to stony loam; and
2. Drainage line with loamy banks supporting occasional *Eucalypt* spp. over tussock grasses.

The drainage line and associated vegetation within the application area may provide significant fauna habitat. The fauna habitats identified within the application area are not considered as necessary for the on-going maintenance of any significant fauna habitat. It is likely that equal or higher quality vegetation and fauna habitats would exist throughout the surrounding area, and Pilbara region. Therefore, it is unlikely that the proposed clearing will significantly impact on fauna habitat. Furthermore, the habitat types described by Biota Environmental Sciences (2008) are well represented within Karijini National Park, which provides potentially important contemporary refugia for many species.

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

Methodology

Biota Environmental Sciences (2008)
DEC (2009)

(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

According to available databases, no Declared Rare Flora (DRF) or Priority Flora species occur within the application area (GIS Database). The nearest recorded location of DRF (*Lepidium catapycnon*) occurs approximately 43 kilometres north-east of the application area (GIS Database).

Prior to a flora survey being undertaken a desktop database search of the following databases was carried out:

- Department of Environment and Conservation's (DEC) Rare and Priority Flora Database;
- Western Australian Herbarium Declared Rare Flora (DRF) and Priority Flora Database;
- *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* 'protected matters' relevant to the study area (Biota Environmental Sciences, 2008).

According to these searches no species of DRF and 18 Priority flora species may occur within the application area (Biota Environmental Sciences, 2008). These are:

P1 - *Josephinia* sp. Marandoo (M.E. Trudgen 1554) and *Brachyscome* sp. Wanna Munna Flats;
P2 - *Acacia daweana, A. effusa, Euphorbia* sp. Mt Bruce Flats, *Indigofera ixocarpa, Scaevola* sp. Hamersley Range and *Spartothmnella puberula*;
P3 - *Acacia bromilowiana, Calotis latiuscula, Dampiera anonyma, Eremophila magnifica* subsp. *velutina* ms, *Geijera salicifolia, Rostellularia adscendens* var. *latifolia*, *Sida* sp. Marandoo and *Swainsona* sp. Hamersley Station; and
P4 - E*remophila magnifica* subsp. *magnifica* and *Ptilotus mollis* (Biota Environmental Sciences, 2008).

A flora survey was conducted over the application area by Biota Environmental Sciences between 25 and 28 April 2008 which followed considerable rainfall and there was optimal observation of many annual species (Biota Environmental Sciences, 2008). This survey involved three standard 50 metre by 50 metre floristic survey quadrats being established within the major vegetation units in the application area (Biota Environmental Sciences, 2008). On-foot traverses were completed of all major habitats and the vegetation associations were examined for the presence or absence of any DRF and Priority Flora species (Biota Environmental Sciences, 2008).

No DRF were recorded whilst three Priority flora species were recorded during the flora survey, namely *Josephinia* sp. Marandoo (P1), *Calotis latiuscula* (P3) and *Goodenia nuda* (P3) (Biota Environmental Sciences, 2008).

Josephinia sp. Marandoo (M.E. Trudgen 1554) (P1) is a small, upright shrub growing to 0.3 metres high and flowering in August (Western Australian Herbarium, 2009). This species is associated with gritty soil and granite on plains with mixed shrublands of Senna and Acacia (Western Australian Herbarium, 2009). This species was recorded by Biota Environmental Sciences (2008) from a single location from dense Mulga vegetation fringing the main creekline through the application area. This species has previously been recorded from 7 locations including; West Marandoo, West Angelas Deposits, Hope Downs and the Marandoo Camp, with population sizes ranging from 1 individual to 50+ individuals (Rio Tinto, 2009).

Calotis latiuscula (P3) is an erect herb growing to 0.5 metres high and flowering from June to October (Western Australian Herbarium, 2009). This species is associated with sand and loam soils on rocky hillsides, floodplains, rocky creeks or riverbeds (Western Australian Herbarium, 2009). Biota Environmental Sciences (2008) recorded a population associated with Mulga vegetation fringing the creekline within the application area.

Goodenia nuda (P3) is an erect to ascending herb growing to 0.5 metres high and flowering from April to August (Western Australian Herbarium, 2009). There was a single record of *Goodenia nuda* from the broad plain in the north-eastern section of the application area (Biota Environmental Sciences, 2008).

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

Methodology Biota Environmental Sciences (2008)
Rio Tinto (2009)
Western Australian Herbarium (2009)
GIS Database
- Declared Rare and Priority Flora List

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments **Proposal is not likely to be at variance to this Principle**
A search of available databases reveals that there are no Threatened Ecological Communities (TEC's) within the application area (GIS Database).

The nearest known TEC to the area applied to clear is the Themeda Grasslands, located approximately 13 kilometres north-west (GIS Database; Biota Environmental Sciences, 2008). It is not expected that the proposed clearing will impact the conservation of this 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 application area falls within the Pilbara Bioregion (GIS Database). Shepherd (2007) report that approximately 99.9% of the pre-European vegetation still exists in this Bioregion.

The vegetation in the application area is recorded as Beard Vegetation Associations

18: Low woodland; mulga (*Acacia aneura*);
29: Sparse low woodland; mulga, discontinuous in scattered groups; and
82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana* (GIS Database; Shepherd, 2007).

According to Shepherd (2007) approximately 100% of Beard Vegetation Associations 18, 29 and 82 remain within the Pilbara Bioregion (see table below).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,164	17,791,654	~99.9	Least Concern	~6.3
Beard veg assoc. – State					
18	19,892,437	19,890,348	~100.0	Least Concern	~2.1
29	7,904,064	7,904,064	~100.0	Least Concern	~0.3
82	2,565,930	2,565,930	~100.0	Least Concern	~10.2
Beard veg assoc. – Bioregion					
18	676,561	676,561	~100.0	Least Concern	~16.8
29	1,133,225	1,133,228	~100.0	Least Concern	~1.9
82	2,563,610	2,563,610	~100.0	Least Concern	~10.2

* 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
- Pre-European Vegetation
- Interim Biogeographic Regionalisation for Australia

(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 known GIS datasets, there are no known permanent watercourses or water bodies within the application area (GIS Database). However, there are numerous minor non-perennial watercourses running through the application area (GIS Database).

Vegetation mapping of the application area by Biota Environmental Sciences (2008) indicates that 6.03 hectares (~2.74%) of the native vegetation within the application area is riparian vegetation. The riparian vegetation is likely to be disturbed due to the construction of haul roads crossing the drainage lines which may alter the watercourses natural regime. To minimise the impact and ensure the natural water flow is maintained it is recommended that culverts and floodways be installed where haul roads intersect drainage lines.

Based on the above, the proposed clearing is at variance to this Principle. However, the proposed clearing is unlikely to result in any significant impact to any watercourse or wetland. The vegetation communities growing in association with the watercourses are not unique and are considered common and widespread in the Pilbara bioregion (Shepherd, 2007; GIS Database). The proposed clearing is unlikely to significantly impact on vegetation communities growing in association with these drainage channels. Should a permit be granted, it is recommended that if any watercourses are to be disturbed the proponent should liaise with the Department of

Water to determine whether a Bed and Banks permit is necessary for the proposed works.

Methodology Biota Environmental Sciences (2008)
GIS Database
- 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 surveyed by the Department of Agriculture and Food (Van Vreeswyk et al., 2004). The application area is composed of the following land systems (GIS Database);

- Newman Land System
- Boolgeeda Land System
- Jurrawarrina Land System

The Newman Land System is described as rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands (Van Vreeswyk et al., 2004). An analysis of aerial photography for the application area reveals the application area is most likely to fall within the 'Plateaux, ridges, mountains and hills' and 'lower slopes' land units. These land units are not susceptible to erosion due to a surface mantle of very abundant pebbles and cobbles of ironstone and other rocks, with outcrops of parent rock. The vegetation described by Van Vreeswyk et al. (2004) accurately reflects the vegetation types described in the vegetation surveys conducted over the area (Biota Environmental Sciences, 2008).

The Boolgeeda Land System is described as stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands and mulga shrublands (Van Vreeswyk et al., 2004). An analysis of aerial photography for the application area reveals the application area is most likely to fall within the 'Stony lower plains' land unit. The soils of this land unit (red loamy earths) are not susceptible to erosion due to surface mantle of very abundant pebbles of ironstone and other rocks. The vegetation described by Van Vreeswyk et al. (2004) accurately reflects the vegetation types described in vegetation surveys conducted over the area (Biota Environmental Sciences, 2008).

The Jurrawarrina Land System is described as hardpan plains and alluvial tracts supporting mulga shrublands with tussock and spinifex grasses (Van Vreeswyk et al., 2004). An analysis of aerial photography for the application area reveals the application area is most likely to fall within the 'Drainage tracts' and 'channels' land units. The soils of these land units are red loamy earths and river bed soils are not susceptible to erosion. The vegetation described by Van Vreeswyk et al. (2004) accurately reflects the vegetation types described in vegetation surveys conducted over the area (Biota Environmental Sciences, 2008).

Based on the above, the proposed clearing is not likely to be at variance to this Principle. It is recommended that should a permit be granted, a condition be imposed on the permit to retain vegetative material and topsoil.

Methodology Biota Environmental Sciences (2008)
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

Karijini National Park is approximately 620,000 hectares in size and represents considerable biodiversity (Australian Heritage Database, 2009). The area is considered to be scenically outstanding, with views from series of hills such as Mount Vigors, Mount Barricade and Mount Bruce (Australian Heritage Database, 2009). Karijini National Park comprises a complete north-south transverse section of the Hamersley Ranges (Australian Heritage Database, 2009). The application area is approximately 1.2 kilometres from the boundary of Karijini National Park at its nearest point (GIS Database).

Karijini National Park is a representative example of the Hamersley Ranges enhanced by most of the area being relatively unmodified by pastoralism or large scale mining operations (Australian Heritage Database, 2009). It is on the Register of the National Estate for its considerable biological diversity with many flora and fauna species of special significance occurring there (Australian Heritage Database, 2009).

The National Park is especially rich in species of the genus acacia, with forty-six of the fifty-four acacia species which occur in the Pilbara region (Australian Heritage Database, 2009). The twenty-nine species of native mammal which inhabit Karijini National Park include three small mammals which are endemic to the Pilbara, which are the Little Red Antechinus (*Antechinus rosamondae*), Pilbara Ninguai (*Ninguai timealeyi*) and the Western Pebble-mound Mouse (*Pseudomys chapmani*) (Australian Heritage Database, 2009). In addition to this, Karijini National Park contains an unusually large number of raptor species (twenty-nine) in the total of 133

species of birds (Australian Heritage Database, 2009).

The application area contains vegetation types and habitats which are well represented and conserved within Karijini National Park (GIS Database; Australian Heritage Database, 2009). The area under application (55 hectares) is highly unlikely to be acting as an important buffer for, or ecological linkage to, Karijini National Park given that the area surrounding Karijini National Park is largely uncleared.

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

Methodology
Australian Heritage Database (2009)
GIS Database
- CALM Managed Lands and Waters
- Register of National Estate

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

Comments

Proposal is not likely to be at variance to this Principle

According to available databases, the application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database).

There are no permanent water bodies or watercourses within the application area (GIS Database). The application area is located in a semi-desert-tropical region, with an average annual rainfall of approximately 283 millimetres falling mainly during the summer months (CALM, 2001; Bureau of Meteorology, 2009). Rainfall can be either intense falls associated with cyclonic events or scattered falls associated with thunderstorm events.

The application area experiences an average annual evaporation rate of approximately 3,400 millimetres (Luke et al., 1987). Therefore, during normal rainfall events, surface water within the application area is likely to evaporate or be utilised by vegetation quickly.

The application area is located within the Hamersley Groundwater Province (GIS Database). The groundwater salinity within the application area is approximately 500 - 1,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). This is considered to be potable water. Given the size of the area to be cleared (55 hectares) compared to the size of the Hamersley Groundwater Province (10,166,832 hectares) (GIS Database), the proposed clearing is not likely to cause salinity levels within the application area to alter significantly.

There are no known groundwater dependent ecosystems within the application area (GIS Database).

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

Methodology
Bureau of Meteorology (2009)
CALM (2001)
Luke et al. (1987)
GIS Database
- Public Drinking Water Source Area
- Hydrography - Linear
- Groundwater - Provinces
- Groundwater Salinity
- Potential Groundwater Dependent Ecosystems

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

Comments

Proposal is not likely to be at variance to this Principle

The application area experiences a semi-desert, tropical climate with an average annual rainfall of 283 millimetres (CALM, 2001; Bureau of Meteorology, 2009). Rainfall is usually experienced during summer months and can be either cyclonic or thunderstorm events (CALM, 2001). It is likely that during times of intense rainfall there may be some localised flooding in adjacent areas. However, the small area to be cleared (55 hectares) in relation to the size of the Fortescue River Catchment area (1,860,784 hectares) is not likely to lead to an increase in flood height or duration (GIS Database).

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

Methodology
Bureau of Meteorology (2009)
CALM (2001)
GIS Database
- Hydrographic Catchments - Catchments

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

Comments

There is one native title claim (WC97/089) over the area under application. This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. 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 two known Aboriginal sites of significance within the application area (ID_8320 and ID_8321) (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.

The application area was referred to the Environmental Protection Authority (EPA) by the Department of Mines and Petroleum (DMP) on the 14 August 2008. The EPA set the level of assessment as 'Not Assessed - Managed under Part V of the EP Act (Clearing)'. This decision was subsequently appealed and the appeal was dismissed by the Minister for Environment on 23 March 2009.

One public submission was received stating no objection to the proposal.

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

4. Assessor's comments

Comment

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

It is recommended that should a permit be granted, conditions be imposed on the permit for the purpose of weed control, retaining vegetative material and topsoil, record keeping and permit reporting.

5. References

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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.
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.