Department of Industry and Resources

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2662/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Robe River Iron Associates**

1.3. Property details

Property: Miscellaneous Licence 47/47
Local Government Area: Shire of Ashburton
Colloquial name: Ti Tree Railway Construction Camp

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
19		Mechanical Removal	Construction Camp and Associated Infrastructure

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 area has been mapped at a 1:250,000 scale as the following Beard vegetation association: (Shepherd et al., 2001; GIS Database).

- 607: Hummock grasslands, low tree steppe; snappy gum & bloodwood over soft spinifex & *Triodia wiseana*.

Biota Environmental Sciences were commissioned by Robe River Iron Associates to undertake a flora and vegetation assessment for the application area. Biota Environmental Sciences (2008) have described the vegetation units that were identified within the application area.

1. Disturbed Areas: Approximately 8 ha in the centre of the Ti Tree Camp study area (14% of the total) comprised cleared or built-on areas associated with the existing Ti Tree rail maintenance camp.

2. AmAatTmTe: *Acacia maitlandii*, *A. atkinsiana* open shrubland over *Triodia melvillei*, *T. epactia* hummock grassland.

3. AatTe: *Acacia atkinsiana* open shrubland over *Triodia epactia* hummock grassland.

4. ChAmoGwPlTe: *Corymbia hamersleyana* scattered low trees over *Acacia monticola*, *Grevillea wickhamii*, *Petalostylis labicheoides* tall closed scrub over *Triodia epactia* very open hummock grassland.

5. AmoAatGwTe: *Acacia monticola*, *A. atkinsiana*, *Grevillea wickhamii* tall open scrub over *Triodia epactia* very open hummock grassland.

Clearing Description
Robe River Iron Associates proposes to clear up to 19 hectares of native vegetation within an application area of approximately 58 hectares for the purpose establishing the Ti Tree Construction Camp and Village which forms part for the 320 Rail Project.

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 (Robe River Iron Associates, 2008).

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

to

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

Comment
A site visit to the application area was undertaken by the Assessing Officer on 5 September 2008. The Assessing Officer concurs with the vegetation units identified 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 is located within the Chichester subregion of the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) region which encompasses an area of 17,804,164 hectares (GIS database). The vegetation within the application area consists of Beard vegetation association 607: Hummock

grasslands, low tree steppe; snappy gum & bloodwood over soft spinifex & *Triodia wiseana* which is common and widespread throughout this region, with approximately 100% of the pre-European vegetation remaining (Shepherd et al. 2001).

The dominant vegetation of the Pilbara region comprises of *Acacia inaequilatera* over *Triodia wiseana* hummock grasslands, and *Eucalyptus leucophloia* over *Triodia wiseana* on ranges (Kendrick and McKenzie, 2001). The Pilbara region is characterised by a diverse range of landforms that includes plains, ranges, hills, plateaux and gorges that provide suitable habitat for a diverse range of flora and fauna species, many of which are endemic to the Pilbara region (Van Vreeswyk et al., 2004; Kendrick and McKenzie, 2001).

Biota Environmental Sciences (2008) have identified a total of five vegetation types within the application area. These are:

1. **Disturbed Areas:** Approximately 8 ha in the centre of the Ti Tree Camp study area (14% of the total) comprised cleared or built-on areas associated with the existing Ti Tree rail maintenance camp;
2. **AmAatTmTe:** *Acacia maitlandii, A. atkinsiana* open shrubland over *Triodia melvillei*, *T. epactia* hummock grassland;
3. **AatTe:** *Acacia atkinsiana* open shrubland over *Triodia epactia* hummock grassland;
4. **ChAmoGwPlTe:** *Corymbia hamersleyana* scattered low trees over *Acacia monticola*, *Grevillea wickhamii*, *Petalostylis labicheoides* tall closed scrub over *Triodia epactia* very open hummock grassland; and
5. **AmoAatGwTe:** *Acacia monticola*, *A. atkinsiana*, *Grevillea wickhamii* tall open scrub over *Triodia epactia* very open hummock grassland (Biota Environmental Sciences, 2008).

The vegetation types within the application area appear typical of such communities across the Chichester subregion and do not comprise of any Threatened Ecological Communities or Priority Ecological Communities (Biota Environmental Sciences, 2008).

A total of 68 native flora species, from 42 genera and belonging to 22 families were identified within the application area (Biota Environmental Sciences, 2008). The Assessing Officer notes that no Declared Rare Flora or Priority flora species were recorded within the application area (Biota Environmental Sciences, 2008).

None of the vegetation types that were identified within the application area appear to be particularly rich in native flora species (Biota Environmental Sciences, 2008), and as a result the application area is not considered to represent an area of high species richness. The vegetation types and species recorded within the application area are typical for the stony hills, plains and flow line communities located throughout the Chichester subregion (Biota Environmental Sciences, 2008).

Based on the vegetation types that have been described for the application area Biota Environmental Sciences (2008) have identified one primary fauna habitat for the application area. This is described as:

1. **Acacia shrubland with scattered *Corymbia hamersleyana* low trees over *Triodia epactia* hummock grassland on stony undulating plains with a loamy substrate** (Biota Environmental Sciences, 2008).

The fauna habitat that has been described for the application area is common and widespread throughout the Pilbara region (Biota Environmental Sciences, 2008). It was evident from a site visit to the application area by the Assessing Officer that the diversity of landforms within the application area is low in terms of ranges, ridges, outcrops or caves suitable to provide habitat for fauna. Given that the vegetation and habitat types are common for the Pilbara region, the application area is unlikely to support a higher diversity of faunal assemblages than the surrounding area.

One introduced (weed) flora species, Buffel Grass (*Cenchrus ciliaris*), was recorded as scattered individuals at two locations within the application area (Biota Environmental Sciences, 2008). Buffel Grass is not a Declared Plant under the *Agriculture and Related Resources Protection Act 1976*, however, it is considered to be a serious environmental weed (Biota Environmental Sciences, 2008). The presence of any weed species is likely to adversely impact on the biodiversity of an area. The disturbance of soil during the proposed clearing is likely to promote weed growth. The Assessing Officer recommends that should the permit be granted, conditions be imposed on the permit for the purpose of weed management.

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

Methodology

Biota Environmental Sciences (2008)
Kendrick and McKenzie (2001)
Shepherd et al. (2001)
Van Vreeswyk et al. (2004)
GIS Database:
- Interim Biogeographic Regionalisation of Australia
- Pre-European Vegetation

(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 of the application area was undertaken in conjunction with the flora and vegetation survey by Biota Environmental Sciences (Biota Environmental Sciences, 2008). In order to identify any significant fauna habitat that may potentially occur within the application area, Biota Environmental Sciences carried out a search of the Western Australian Museum Faunabase, Department of Environment and Conservation Threatened Fauna database, *Environmental Protection and Biodiversity Conservation Act 1999* database and the Department of Environment and Conservation Pilbara Biological Survey database to identify Schedule and Priority listed fauna that may occur within a 35 kilometre radius from the application area (Biota Environmental Sciences, 2008).

Based on the results of the database search and field survey the following species of conservation significance may occur within the application area (Biota Environmental Sciences, 2008): Northern Quoll (*Dasyurus hallucatus*), Mulgara (*Dasycercus cristicauda*), Orange Leaf-nosed Bat (*Rhinonicteris aurantius*), Pilbara Olive Python (*Liasis olivaceus barroni*), Western Pebble-mound Mouse (*Pseudomys chapmani*), Lakeland Downs Mouse (*Leggadina lakedownensis*), Ghost Bat (*Macroderma gigas*), Bush Stone-curlew (*Burhinus grallarius*), Star Finch (western) (*Neochmia ruficauda subclarescens*), Fork-tailed Swift (*Apus pacificus*) and Rainbow Bee-eater (*Merops ornatus*).
Biota Environmental Sciences (2008) identified one primary fauna habitat within the application area. The fauna habitat classification was based on the dominant landforms and vegetation types (Biota Environmental Sciences, 2008). Biota Environmental Sciences (2008) have described the fauna habitat type as:

1. **Acacia shrubland with scattered *Corymbia hamersleyana* low trees over *Triodia epactia* hummock grassland on stony undulating plains with a loamy substrate** (Biota Environmental Sciences, 2008).

During a site visit to the application area the Assessing Officer observed that the diversity of landforms within the application area is low in terms of ranges, ridges, outcrops or caves suitable to provide significant habitat for fauna. The vegetation and landforms within the application area were common and consistent to those adjoining the application area. The fauna habitat identified within the application area is considered widespread and abundant throughout the Chichester subregion (Biota Environmental Sciences, 2008).

Whilst it is possible that some fauna species of conservation significance may utilise the habitat within the application area from time to time, Biota Environmental Sciences (2008) report that the fauna habitat that has been identified for the application area is not considered significant habitat for any of the fauna species of conservation significance listed above.

The vegetation communities and landforms that have been identified within the application area are unlikely to be considered as necessary for the on-going maintenance of any significant fauna habitat. In addition, it is considered likely that equal or higher quality vegetation and fauna habitats would exist throughout the surrounding area, and Pilbara region.

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

Methodology Biota Environmental Sciences (2008)

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

Comments

Proposal is not likely to be at variance to this Principle

According to available datasets there are no known records of Declared Rare Flora (DRF) or Priority flora species within the application area (GIS database).

A flora and vegetation assessment of the application area was undertaken by botanists from Biota Environmental Sciences on 20 March 2008 (Biota Environmental Sciences, 2008). No DRF or Priority flora species were recorded within the survey area, and none would be expected to occur (Biota Environmental Sciences, 2008). The proposed clearing is unlikely to impact on any DRF of Priority flora species.

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

Methodology Biota Environmental Sciences (2008)
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

There are no known Threatened Ecological Communities (TEC's) within the application area (GIS database; Biota Environmental Sciences, 2008). The nearest known TEC is located approximately 51 kilometres south of the application area (GIS database). Given the distance between the proposal and the nearest known TEC, the proposed clearing is unlikely to impact on the conservation of that TEC.

Based on the above, the proposal 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 607: Hummock grasslands, low tree steppe; snappy gum & bloodwood over soft spinifex & *Triodia wiseana* (GIS Database, Shepherd et al., 2001). According to Shepherd et al. (2001) approximately 100% of Beard vegetation association 607 remains at both the state and regional level.

According to the Bioregional Conservation Status of Ecological Vegetation Classes the conservation status for the Pilbara Bioregion and Beard vegetation associations 607 is of "Least Concern" (Department of Natural Resources and Environment, 2002).

While a small 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 vegetation associations within the bioregion is not likely to be impacted 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					
607	120,791	120,791	~100	Least Concern	12.8
Beard veg assoc. – Bioregion					
607	120,791	120,791	~100	Least Concern	12.8

* 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 proposed clearing is not at variance to this Principle.

Methodology

Department of Natural Resources and Environment (2002)
Shepherd et al. (2001)
GIS Database:
- Interim Biogeographic Regionalisation of Australia
- 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

A site visit to the clearing application area was undertaken by the Assessing Officer on 5 September 2008 and it was evident that there are no permanent wetlands or watercourses within the application area (Biota Environmental Sciences, 2008; GIS Database). However, one seasonal creekline and several drainage lines dissect the application area (Biota Environmental Sciences, 2008; GIS Database).

Biota Environmental Sciences (2008) has identified and described the vegetation unit of the creekline as:

- ChAmoGwPlTe: *Corymbia hamersleyana* scattered low trees over *Acacia monticola*, *Grevillea wickhamii*, *Petalostylis labicheoides* tall closed scrub over *Triodia epactia* very open hummock grassland (Biota Environmental Sciences, 2008).

During the site visit to the application area the Assessing Officer traversed the length of the creekline and observed that the creekline was well defined with broad to moderately sloping banks on either side of the creek bed. The creekline was dry at the time of the site visit, and it is likely that the creekline would only flow for short periods following significant rainfall events. Geographic Information System (GIS) analysis indicates that the creekline feeds into the Fortescue River which is located approximately 750 metres west of the application area. The vegetation growing in association with the creekline was restricted to the creek bed and banks of the creekline, for a width of approximately 15 metres either side from the creek bed. The vegetation community growing in association with the creekline is considered common and widespread throughout the Pilbara region (Shepherd et al., 2001). However, it is likely to be regarded as significant as it would be important for maintaining the structure and integrity of the creek line system which would thereby minimise the risk of erosion occurring. Biota Environmental Sciences (2008) have advised that camp structures should be located such that the creekline supporting the vegetation unit **ChAmoGwPlTe** is not cleared, if possible. It is recommended that should a permit be granted, conditions be endorsed on the permit with regards to creekline and riparian vegetation protection.

Biota Environmental Sciences (2008) has identified and described the vegetation unit of the drainage lines as:

- AmoAatGwte: *Acacia monticola*, *A. atkinsiana*, *Grevillea wickhamii* tall open scrub over *Triodia epactia* very open hummock grassland (Biota Environmental Sciences, 2008).

The site visit to the application area confirmed that these drainage lines were less well-developed flowlines which dissected the stony footslopes of the application area (Biota Environmental Sciences, 2008). These drainage lines are minor, natural broad flow channels that are widespread across the Pilbara landscape (GIS database), and are responsible for quickly dispersing floodwaters after significant rainfall events. The vegetation communities growing in association with the watercourses are not unique and are considered common and widespread in the Pilbara bioregion (GIS Database). The proposed clearing is unlikely to significantly impact on the local or regional extent of those vegetation communities growing in association with these minor ephemeral creek systems.

Based on the above, the proposal is at variance to this Principle. Should the permit be granted, it is recommended that a condition be imposed on the permit to protect the integrity of the creekline which intercepts the application area.

Methodology

Biota Environmental Sciences (2008)
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 may be at variance to this Principle

According to the Department of Agriculture in Technical Bulletin No 62 "An inventory and condition survey of Pilbara region, Western Australia" (Van Vreeswyk et al., 2004), the application area consists of the Boolgeeda and Newman Land Systems.

- The Boolgeeda Land System consists of stony lower slopes and wide, low relief plains, below large range hill systems that support spinifex grasslands and Mulga shrublands (Van Vreeswyk et al., 2004). Approximately 30.9 hectares of the 58.3 hectare application area comprises of the Boolgeeda Land System (Biota Environmental Sciences, 2008). The majority of the 30.9 hectare area is characterised by the stony slopes and upper plains landform unit, with small sections dissected by narrow drainage floors and channels landform unit (Biota Environmental Sciences, 2008). Van Vreeswyk et al., (2004) report that the Boolgeeda Land System is not susceptible to erosion.

- The Newman Land System consists of rugged jaspilitic ranges, plateaux, ridges and mountains supporting hard spinifex grasslands (Payne et al., 1988). Approximately 27.4 hectares of the 58.3 hectare application area comprises of the Newman Land System (Biota Environmental Sciences,

2008). The majority of the 27.4 hectare area appears to occur on the stony plains and lower slopes landform units (Biota Environmental Sciences, 2008). Given the stony nature of the surface materials (Van Vreeswyk et al., 2004), the Newman Land System is unlikely to be susceptible to erosion.

A site visit was undertaken by the Assessing Officer on 5 September 2008 and it was evident that the application area was located on the stony plains and upper plains landform unit of the Boolgeeda Land System, and the stony plains and lower slopes landform units of the Newman Land System (Van Vreeswyk et al., 2004). The central portion of the application area was covered by the operational Ti Tree Rail Maintenance Village, and an adjacent area comprised of a rehabilitated area totalling approximately 4 hectares. In addition, several disturbed areas were observed throughout the application area, and these included a lay down area, car park, wastewater treatment facility and several un-sealed roads. One moderate sized creekline dissected the application area.

Biota Environmental Sciences (2008) has identified and described the vegetation unit of the creekline as:

- **ChAmoGwPlTe:** *Corymbia hamersleyana* scattered low trees over *Acacia monticola*, *Grevillea wickhamii*, *Petalostylis labicheoides* tall closed scrub over *Triodia epactia* very open hummock grassland.

It was evident from the site visit to the application area that the creekline represents the largest surface drainage feature for the area (Biota Environmental Sciences, 2008). Although the creekline was dry at the time of the site visit, it is likely that the creekline will be subject to considerable flows following significant rainfall events. It was observed that the vegetation within the creekline is intact and its condition has been described as 'Very Good' (Biota Environmental Sciences, 2008). The maintenance of the vegetation within the creekline is considered important for preserving the structure and integrity of the creek line system which would thereby minimise the risk of erosion occurring. There is likely to be a moderate risk of soil erosion occurring should the vegetation or stony mantles of the creekline be disturbed by the proposed clearing activities. It is recommended that should a permit be granted, conditions be endorsed on the permit with regards to creekline and riparian vegetation protection.

The Assessing Officer observed that the soils throughout the application area were comprised of abundant to very abundant pebbles of ironstone over red loamy earths. There was no evidence of soil erosion observed within the vicinity of the disturbed or un-disturbed areas throughout the application area. The proposed clearing of native vegetation may expose surface mantles which may cause an increase in surface water runoff during significant rainfall events, however, given the stony nature of the soils, and considering the absence of soil erosion near previously disturbed areas, water and/or wind erosion is unlikely to occur.

The application area is not associated with any low-lying permanently damp wetlands or watercourses (GIS Database). It was evident from the site visit that the majority of the application area is located on the stony upper plains and lower slopes of the local topographic profile. The Assessing Officer notes that there were no signs of water-logging observed throughout the application area. With the application area experiencing mean annual rainfall of approximately 400 millimetres and mean annual evaporation of approximately 3400 millimetres (GIS Database), it is likely that majority of normal season rainfall would quickly evaporate, or runoff down slope following significant rainfall events. Given the low rainfall to high evaporation rate for the application area, the proposed clearing native vegetation is unlikely to significantly increase water infiltration into the soil which could otherwise alter groundwater levels. The proposed clearing is unlikely to cause water logging on or off site.

The application area is situated within the Fortescue River catchment which covers a total area of approximately 1,860,784 hectares. Groundwater salinities within the application area and adjoining areas have been recorded in the range of 500 - 1,000 milligrams/Litre Total Dissolved Solids (GIS Database). Given the low rainfall to high evaporation rate for the application area, the proposed clearing native vegetation is unlikely to significantly increase water infiltration into the soil which could otherwise lead to significant rises to ground water levels. As a result, the proposed clearing is unlikely increase land salinisation either on-site or off-site.

Based on the above, the proposal may be at variance to this Principle due to the risk of soil erosion occurring should the vegetation or stony mantles of the creekline be disturbed by the proposed clearing activities. In order to protect the seasonal creekline which intercepts the application area, thereby minimising the risk of erosion occurring, the Assessing Officer recommends that should a permit be granted, conditions be endorsed on the permit with regards to creekline and riparian vegetation protection.

Methodology

Biota Environmental Sciences (2008)
Payne et al. (1988)
Van Vreeswyk et al. (2004)
GIS Database:
- Rangeland Land System Mapping
- Rainfall, Mean Annual
- Evaporation Isopleths
- Groundwater Salinity, Statewide
- Hydrography, linear_1

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Comments

Proposal is not likely to be at variance to this Principle

The application area is not located within a Department of Environment and Conservation managed conservation area (GIS Database; Biota Environmental Sciences, 2008). The nearest conservation area is Millstream-Chichester National Park which is situated approximately 30 kilometres north of the application area (GIS database; Biota Environmental Sciences, 2008). 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 Millstream-Chichester National Park.

Based on the above, the proposal 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

A site visit was undertaken to the application area by the Assessing Officer on 5 September and it was evident that there are no permanent wetlands or watercourses within or adjacent to the application area (GIS Database). One creekline and several drainage lines dissect the application area and these are responsible for quickly dispersing floodwaters that occur after significant rainfall events. The application area is located within the Boolgeeda and Newman Land Systems which are characterised by high resistance to erosion (Van Vreeswyk et al., 2004; Payne et al., 1998), 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 area is located within the Millstream Water Reserve which covers a total area of approximately 486,303 hectares (GIS Database). The Millstream Water Reserve was gazetted under the *Country Areas Water Supply Act 1947* (CAWS) and this area of the Millstream Water Reserve has been assigned a 'Priority 2 (P2)' under the Water Source Protection Classification System (Department of Water, 2008; GIS Database). Construction camps are compatible with conditions in P2 Public Drinking Water Source Areas (Department of Water, 2008). The Department of Water (2008) advises that the proposed clearing of 19 hectares of native vegetation is acceptable as it is not likely to impact upon surface and groundwater resources in the area. The proponent should submit a Notice of Intent (NOI) for the construction of the camp to the Department of Water for assessment (Department of Water, 2008).

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

Methodology

Department of Water (2008)
Payne et al. (1998)
Van Vreeswyk et al. (2004)
GIS Database:
- Hydrography, linear_1
- Public Drinking Water Source Areas (PDWSAs)

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

Comments

Proposal is not likely to be at variance to this Principle

The application area experiences mean annual rainfall of approximately 400 millimetres, with the majority of rainfall received between December and March, and mean annual evaporation of approximately 3400 millimetres (GIS Database). Local flooding can be expected to occur seasonally in the Pilbara region as a result of heavy rainfall triggered by cyclonic activity and sporadic thunderstorms (Biota Environmental Sciences, 2008).

The application area is not associated with any permanent wetlands or watercourses, however, one seasonal creekline and several drainage lines dissect the application area (GIS Database; Biota Environmental Sciences, 2008). These drainage lines which dissect the application area are common and widespread throughout the Pilbara, and are responsible for quickly dispersing floodwaters after significant rainfall events, thereby reducing peak flood heights (GIS database). It was evident from the site visit to the application area on 5 September 2008 that the majority of the application area is located on the stony upper plains and lower slopes of the local topographic profile. There was no evidence of any low-lying or seasonally damp areas observed within the application area during the site visit.

The application area is located within the Fortescue River Catchment which covers an area of approximately 1,860,784 hectares (GIS Database). It is unlikely that the proposed clearing of 19 hectares for the Ti Tree

Construction Village will impact on the drainage patterns for the Fortescue River Catchment or for the local area. The proposed clearing of native vegetation is unlikely to cause or increase the incidence of flooding on site or off site, or result in an increase in peak flood height.

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

Methodology Biota Environmental Sciences (2008)
GIS Database:
- Rainfall, Mean Annual
- Evaporation Isopleths
- Hydrographic Catchments – Catchments

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

Comments

Robe River Iron Associates clearing application CPS 2662/1 included a portion of land in the south-east of the application area which is covered by Crown Reserve 40743 which is vested by the Department for Planning and Infrastructure. The Assessing Officer notes that the portion of land covered by Crown Reserve 40743 has been excised from Robe River Iron Associates Miscellaneous Licence 47/47. Given that Robe River Iron Associates does not hold any land tenure for the portion of land covered by Crown Reserve 40743, this area has been excised from the clearing permit CPS 2662/1 application area.

There is one native title claim over the area under application; (WC99/014) (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 area 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.

Two direct interest submissions were received during the public submission period. One submission was in relation to native title rights, and the issues raised within the submission have been addressed above. The second direct interest submission raised no objections to the application.

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 DIA

4. Assessor's comments

Comment

The proposal has been assessed against the Clearing Principles and is at variance to Principle (f), may be at variance to Principle (g), is not likely to be at variance to Principles (a), (b), (c), (d), (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 creekline and riparian vegetation protection, weed management, record keeping and permit reporting.

5. References

Biota Environmental Sciences (2008). Ti Tree Rail Construction Camp: Native Vegetation Clearing Permit Report, Prepared for Robe River Mining Company Pty Ltd, Prepared by Biota Environmental Sciences, June 2008.

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Australia, Perth, Western Australia.
Robe River (2008). Documentation Accompanying Clearing Permit Application for CPS 2662/1, Prepared by Robe River Pty Ltd, July 2008.
Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001). Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
Van Vreeswyk A.M.E., Payne A.L., Leighton K.A. and Hennig P. (2004). Technical Bulletin - An inventory and condition survey of rangelands in Pilbara Region, Western Australia, No 92, Department of Agriculture, Government of Western Australia, Perth, Western Australia.

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.