Department of Industry and Resources

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2571/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Boxcut Mining Pty Ltd**

1.3. Property details

Property: Exploration Licence 45/2690
Exploration Licence 45/2691
Local Government Area: Shire Of East Pilbara
Colloquial name:

1.4. Application

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

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description Vegetation within the application area has been mapped at a 1:250,000 scale as the following Beard vegetation associations:

- 99: Hummock grasslands, shrub steppe; *Acacia coriacea* & hakea over hard spinifex, *Triodia basedowii;* and

- 117: Hummock grasslands, grass steppe; soft spinifex (Shepherd et al. 2001).

Astron Environmental Services undertook a flora and vegetation assessment of the application area between 18 and 26 April 2008. A total of 13 vegetation units were recorded from 4 major vegetation landform units (Astron Environmental Services, 2008).

1) Vegetation of the Creeklines

1.1) Acacia spp. Shrublands and scrubs over Triodia spp. -
Acacia eriopoda closed scrub over *Rulingia luteiflora* scattered shrubs over *Indigofera monophylla* scattered low shrubs over *Triodia epactia* hummock grassland.

1.2) *Eucalyptus camaldulensis* var. *obtusa* creeklines – *Eucalyptus camaldulensis* var. *obtuse* low woodland over *Acacia eriopoda* high shrubland to open scrub over *Triodia epactia, Cenchrus ciliaris* tussock open grassland/hummock grassland.

1.3*) Eucalyptus leucophloia* minor creek lines – *Eucalyptus leucophloia* scattered low trees over *Acacia eriopoda, A. retivenea* shrubland over *Triodia epactia* open hummock grassland.

1.4) Other creekline, flood bank and wet depression vegetation - *Acacia inaequilatera, A. eriopoda, A. colei* var. *colei* scattered tall shrubs over high shrubland over *A. ligulata, A. melleodora* over scattered low shrubs over hummock grassland.

2) Vegetation of the Plains

2.1) Acacia spp. shrublands and scrubs over Triodia spp. (mainly *Triodia lanigera* and *Triodia schinzii*) hummock grassland plains.

2.2) Corymbia spp. plain vegetation – *Corymbia hamersleyana, C. opaca* scattered low trees over *Acacia melleodora, A. eriopoda, A. ancistrocarpa* high open shrubland over *Bonamia rosea, Indigofera georgei* scattered low shrubland over *Triodia epactia, T. schnzii* hummock grassland.

2.3*) Eucalyptus odonotocarpa* low mallee woodlands – *Eucalyptus odontocarpa* low open mallee woodland *Acacia ancistrocarpa, A. ligulata* scattered shrubs to high open shrubland over *Sida cardiophylla* low open shrubland over *Triodia lanigera* hummock grassland.

2.4) Other Eucalyptus spp. Woodlands – *Eucalyptus leucophloia* low open woodland over *Acacia eriopoda* scattered tall shrubs over *Acacia melleodora* high open shrubland over *Triodia lanigera* hummock grassland.

2.5) Other plains vegetation units – *Acacia eriopoda, A. ancistrocarpa, Grevilliea eriostachya* scattered shrubs over *Acacia melleodora, Petalostylis cassioides* scattered low shrubs over *Triodia schinzii, T. lanigera* and *T.*

epactia.

3) Vegetation of the Hill Slopes

3.1) Acacia spp. scattered shrubs to open shrublands over Triodia spp. hummock grasslands.

3.2) *Eucalyptus leucophloia* slopes – *Eucalyptus leucophloia* scattered low trees over *Acacia eripoda* scattered tall shrubs over *Trioida epactia* and *Cenchrus ciliaris* hummock grassland.

3.3) Other hillslope vegetation units – *Cassia glutinosa, Senna glutinosa* sp. *Glutinosa, Eremophila latrobei* scattered shrubs over *Triodia epactia* and *Cenchrus ciliaris* hummock grassland.

4) Vegetation of the Clay Pans

4.1) *Acacia synchronicia* open shrubland - *Senna artemisoides* sp. *oligophylla* low open shrubland over *Solanum lasiophyllum* scattered low shrubs over *Aristida contorta, Cenchrus ciliaris* open grassland with *Scleroaena diacantha, S. densiflora* and *Fimbristylis dichotoma* open grassland/herbland/sedgeland.

Clearing Description

Boxcut Mining Pty Ltd proposes to clear up to 13.1 hectares within an application area of approximately 109.1 hectares for the purpose of mineral exploration (Boxcut Mining Pty Ltd, 2008; GIS Database).

Boxcut Mining Pty Ltd (2008) has advised that the proposed exploration activities will involve clearing for up to 192 drill pads (20 metres by 20 metres), 192 sumps (5 metres by 5 metres) and access tracks (21.86 kilometres in length by 3 metres in width). The size of the drill pads and sumps are likely to be less than that indicated as blade down clearing for drill pads will be restricted where possible (Boxcut Mining Pty Ltd, 2008). However, some drill pads may require blade down clearing if there are occupational health and safety issues (Boxcut Mining Pty Ltd, 2008).

Clearing for access tracks will be restricted to a width of approximately 3 metres. Boxcut Mining propose to use raised blade clearing on even ground, or wherever possible, and intend re-clearing existing tracks where possible in order to minimise the disturbance to native vegetation (Boxcut Mining Pty Ltd, 2008). Boxcut Mining has advised that blade down clearing will only be utilised in instances where there is a necessity to turn a rock or some kind of sharp hummock.

Topsoil and vegetation will be collected and stockpiled for use in future rehabilitation (Boxcut Mining Pty Ltd, 2008).

The clearing management techniques to be utilised by Boxcut Mining are likely to minimise the disturbance to native vegetation and subsequently minimise the risk of impacting on the biological diversity within the application area and local area.

Vegetation Condition

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

to

Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994).

Comment

The proposed clearing activities under this application are for an extension to an existing exploration programme (Exploration Programme 8421 and 8422) on Exploration licences 45/2690 and 45/2691. Exploration Programmes 8421 and 8422 have been approved by the Department of Industry and Resources, and the Department of Environment and Conservation have issued Boxcut Mining Pty Ltd with Clearing Permit CPS 2192/1 for the related clearing activities. Clearing Permit CPS 2192/1 authorised the clearing of up to 21.33 hectares.

The Assessing Officer notes that the application area under this proposal (CPS 2571/1) adjoins the area authorised under Clearing Permit CPS 2192/1.

Aston Environmental (2008) described the condition of the vegetation using a vegetation condition scale reproduced from Trudgen (1988).

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 Rudall subregion of the Little Sandy Desert Interim Biogeographic Regionalisation for Australia (IBRA) bioregion which encompasses an area of 11,089,900 hectares (GIS database; Shepherd et al. 2001). The Rudall subregion is characterised by sparse shrub-steppe over *Triodia basedowii* on stony hills, with River Gum communities and bunch grasslands on alluvial deposits and associated ranges (Kendrick, 2001). The vegetation of the application area consists of two vegetation associations (Beard Vegetation Associations 99 and 117), both of which are common and widespread throughout this region, with approximately 100% of the pre-European vegetation remaining (Shepherd et al., 2001). Dominant land uses in the region include conservation, unallocated crown land, mining leases and urban (aboriginal communities) (Kendrick, 2001).

The Rudall subregion is known to support a diversity of arid zone reptiles, particularly skink lizards from the genera Lerista and Ctenotus (Kendrick, 2001). The upper Rudall River is listed as a rare feature of the subregion given that it is one of only two arid zone rivers with near permanent wetlands along its course (Kendrick, 2001). These wetlands support a biologically diverse assemblage of waterbirds, and support riparian woodland communities that are not well represented elsewhere (Australian Heritage Database, 2007).

A total of 196 native vascular flora species and two weed species were recorded within the application area (Astron Environmental Services, 2008). Astron Environmental Services (2008) state that the floristic diversity of the vegetation within the application area represents moderate species richness for the 150 hectare survey area. The vegetation over most of the survey area was in 'Excellent' condition, with little sign of disturbance other than old overgrown vehicle tracks in the eastern part of the survey area (Astron Environmental Services, 2008). No Declared Rare Flora (DRF), Priority flora species or Threatened Ecological Communities were identified within the application area (Astron Environmental Services, 2008).

The Assessing Officer notes that the proposed exploration activities are for an extension to an existing exploration programme (Exploration Programme 8421 and 8422) on Exploration licences 45/2690 and 45/2691. Exploration Programmes 8421 and 8422 have been approved by the Department of Industry and Resources, and the Department of Environment and Conservation have issued Boxcut Mining Pty Ltd with Clearing Permit CPS 2192/1 for the related clearing activities.

Astron Environmental Services carried out a flora survey of the area approved under Clearing Permit CPS 2192/1 during July 2007 and recorded one native fern species and 317 native flowering plant species from 49 families (Astron Environmental Services, 2007). The greater number of species recorded during the July 2007 survey, compared to the flora survey for this application, was most likely due to:

- The July 2007 survey corridor totalling approximately 300 hectares in size;
- The July 2007 survey corridor covering a greater diversity of vegetation associations; and
- A fire which had burnt a significant portion of the 2008 survey corridor, resulting in the presence of only juvenile regrowth (Astron Environmental Services. 2008).

Astron Environmental Services (2008) report that of the 198 flora species recorded during the flora survey for this application (CPS 2571/1), only 29 species had not been recorded during the July 2007 survey. Given that none of these species are classed as DRF or Priority flora, it would be considered likely that the majority of these species are not uncommon in the Kintyre rocks locality.

The two weed species, Buffel Grass (*Cenchrus ciliaris*) and Pie Melon (*Citrullus lanatus*), were recorded within the application area (Astron Environmental Services, 2008). Astron Environmental Services (2008) recorded grasslands of Buffel Grass in most of the larger creeks and creek flood banks. Pie Melon was sparsely distributed throughout the survey area and favoured creeks and sandy soils (Astron Environmental Services, 2008). Weed species have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. Given the close proximity of the application area to the Rudall River National Park, the Assessing Officer recommends should the permit be granted, that conditions be imposed on the permit for the purposes of weed management.

A number of introduced exotic fauna species that occur in the bioregion have been identified by Environment Australia (2002) (Outback Ecology, 2008). These include the House Mouse (*Mus domesticus*), Red Fox (*Vulpes vulpes*), Feral Cat (*Felis catus*), European Rabbit (*Oryctolagus cuniculus*), Donkey (*Equus asinus*), Dromedary Camel (*Camelus dromedarius*), European Cattle (*Bos taurus*) and the Goat (*Capra hircus*). Donkeys, goats and camels are all likely to be very common over the project area, whilst foxes, cats and rabbits are likely to decline and increase according to seasonal fluctuations (Outback Ecology, 2008). The presence of introduced animals can cause adverse impacts to natural ecosystem communities. Impacts include predation of native fauna, competition with native fauna for food and habitats, overgrazing and trampling of native vegetation and soil compaction. All of these impacts can contribute to a decline in the biological diversity.

The eastern entry point for the application area is located immediately adjacent to the boundary of the Rudall River National Park (GIS Database). The Rudall River National Park is listed on the Register of the National Estate as an Environmentally Sensitive Area for its significance in maintaining on-going geomorphic and ecological processes within a tropical desert environment (Australian Heritage Database, 2007). The Rudall River National Park follows the course of the Rudall River which rises in rugged hills then flows north east through sand-dune country into Lake Dora on the edge of the Great Sandy Desert. It is a vast wilderness area and has a number of different environments ranging from Throssel and Broadhurst Ranges to the huge expanses of the Lake Dora and Lake Blanche salt lakes. The park is dissected longitudinally by the Rudall River which contains a system of permanent water holes along with ephemeral and semi-ephemeral water courses. The presence of these means that the park has an unusually rich and diverse range of flora and fauna, including frogs, birds, mammals and a great array of reptiles (SEA US, 1999). The Rudall River National Park has a large number of habitats resulting in a diverse flora of over 400 species (Australian Heritage Database, 2007).

Although the application area is high in floral diversity and is likely to be high in faunal diversity, it is unlikely that the application area contains a higher level of biological diversity than the surrounding areas or adjoining Rudall River National Park. None of the significant landform features such as permanent water holes and watercourses, salt lakes or ranges appear to exist within the application area (Astron Environmental Services,

2008; GIS Database). All of the habitats present within the survey corridor are likely to exist over vast areas in the local or regional Kintyre area.

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

Methodology

Astron Environmental Services (2007)
Astron Environmental Services (2008)
Australian Heritage Database (2007)
Environment Australia (2002)
Kendrick (2001)
Outback Ecology (2008)
SEA US (1999)
Shepherd et al. (2001)
GIS Database:
- CALM Managed Lands and Waters
- Hydrography, linear
- Interim Biogeographic Regionalisation of Australia
- Interim Biogeographic Regionalisation of Australia (subregions)
- 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 may be at variance to this Principle

Outback Ecology was commissioned by Boxcut Mining Pty Ltd in January 2008 to undertake a desktop literature review to identify terrestrial fauna and significant habitat which may potentially occur within the project area.

As part of the desktop literature review, Outback Ecology (2008) carried out a comprehensive database search to identify vertebrate fauna of conservation significance and significant fauna habitats that may occur within the application area. The following databases were searched:

- The Western Australian Museum (WAM) Faunabase;
- The Environment Reporting Tool of the Australian Government Department of the Environment and Heritage (DEH);
- The Commonwealth *Environment Protection and Biodiversity Conservation* (EPBC) Act Protected Matters Database;
- The Australian Natural Resources Atlas;
- Birds Australia (BA) Atlas Database, and
- The Australian Wetlands Database of the Australian Government Department of Environment and Water Resources.

Based on the desktop fauna survey, the following significant fauna species may potentially occur within the application area:

Northern Quoll (*Dasyurus halluctas*), Mulgara (*Dasycerus cristicauda*), Greater Bilby (*Macrotis Lagotis*), Northern Marsupial Mole (*Notoryctes caurinus*), Black-Flanked Rock Wallaby (*Petrogale lateralis lateralis*), Ghost Bat (*Macroderma gigas*), Orange Leaf-nosed Bat (*Rhinonicteris aurantius*), Long-tailed Dunnart (*Sminthopsis longicaudata*), Western Pebble-mound Mouse (*Pseudomys chapmani*), Night Parrot (*Pezoporus occidentalis*), Princess Parrot (*Polytelis alexandrae*), Australian Bustard (*Ardeotis australis*), Bush Stone-curlew (*Burhinus grallarius*), Grey Falcon (*Falco hypoleucos*), Star Finch (western) (*Neochima ruficauda subclarescens*), Rainbow Bee-eater (*Merops ornatus*), Fork-tailed Swift (*Apus pacificus*) and the Great Desert Skink (*Egernia kintorei*) (Outback Ecology, 2008).

A flora and vegetation survey of the application area was undertaken by Astron Environmental between 18 and 26 April 2008 (Astron Environmental Services, 2008). The survey provided a detailed description of the vegetation communities that were present within the clearing application area. Based on the vegetation units described by Astron Environmental Services (2008) and, Outback Ecology (2008) have identified the significant fauna habitats that are likely to be present within the application area. These are:

- Mulga woodlands;
- Drainage lines;
- Plains, clay and sandy Spinifex plains;
- Mulga groves and woodlands;
- Hill slopes and sand dunes; and
- Rocky outcrops.

The habitat types present within the application area are likely to be represented elsewhere in the Little Sandy Desert bioregion (Outback Ecology, 2008). Vegetation in the application area has been mapped at a broad scale as Beard Vegetation Associations 99 and 117 (GIS Database). Approximately 100% of each of these

vegetation associations remains in the Little Sandy Desert bioregion, and approximately 27% and 36.2% is represented in conservation reserves respectively (Shepherd et al. 2001). Many of the habitats within the application area are likely to be well represented within the nearby Rudall River National Park and throughout the surrounding Kintyre Rocks locality.

Boxcut Mining Pty Ltd (2008) have applied to clear up to 13.1 hectares within an application area of 109.1 hectares, and have submitted a detailed clearing application area which clearly outlines the location of the proposed access tracks, drill pads and sumps. The Assessing Officer notes that the clearing application area consists of a 50 metre buffer around the proposed exploration corridors in order to select an access pathway which minimises the impact to native vegetation (Boxcut Mining Pty Ltd, 2008; 2007). Boxcut Mining Pty Ltd (2008) advises that clearing for the proposed access tracks will be restricted to a track width of approximately 3 metres, and clearing for the drill pad and sumps will be restricted to a total area of approximately 425 square metres. Clearing for the access tracks and drill pads will primarily be raised blade and the applicant has advised that existing tracks will be re-cleared and utilised where possible (Boxcut Mining Pty Ltd, 2008). Boxcut Mining Pty Ltd (2008) has advised that blade down clearing will only be carried out in areas where rocks or dense vegetation prevent access.

The proposed clearing activities are likely to have localised impacts on fauna species that are present within the application area. If present, burrowing species such as the Greater Bilby, Mulgara, Northern Marsupial Mole and Great Desert Skink are most at risk at being impacted on by the proposed clearing activities (Outback Ecology, 2008).

Based on the above, the proposal may be at variance to this Principle. However, given the low impact and localised nature of the proposed clearing activities, the proposed clearing is unlikely to significantly impact on fauna habitats in the area, or cause significant habitat fragmentation in the local area.

The Assessing Officer recommends should the permit be granted, that conditions be imposed on the permit for the purposes fauna management. A qualified zoologist should inspect the proposed clearing areas for evidence of habitat that may support the Greater Bilby, Mulgara, Northern Marsupial Mole and Great Desert Skink, prior to clearing. Should evidence of these species be identified, it is recommended that these areas be flagged and avoided during the clearing process. Many of the bird, bat and larger mammal species that may potentially be present within the application area are mobile and will be able to move to adjacent habitat with the onset of any disturbance.

Methodology

Astron Environmental Services (2008)
Boxcut Mining Pty Ltd (2007)
Boxcut Mining Pty Ltd (2008)
Outback Ecology (2008)
Shepherd et al. (2001)
GIS Database:
- Pre-European Vegetation

(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).

Astron Environmental Services carried out a flora and vegetation survey of the application area between 18 and 26 April 2008 (Astron Environmental Services, 2008). Boxcut Mining has provided a detailed clearing application area for the proposed exploration activities. The survey included:

- a search of the DEC Threatened (Declared Rare) Flora database and DEC's Declared Rare and Priority Flora list;
- a delineation and characterisation of the flora and vegetation types within the application area;
- a search for Declared Rare Flora (DRF) and Priority Flora species; and
- a description and map of the vegetation associations present.

No DRF or Priority Flora was recorded during the flora and vegetation survey (Astron Environmental Services, 2008).

One species, tentatively identified as *Thysanotus* sp., was recorded during the survey of the application area (Astron Environmental Services, 2008). *Thysanotus* sp. could potentially be the Priority 2 species *Thysanotus* sp. Desert East of Newman (R.P. Hart 964) (Astron Environmental Services, 2008). Astron Environmental Services (2008) noted that the specimen was sterile and could not be identified comprehensively (Astron Environmental Services, 2008).

Two individuals of *Thysanotus* sp. Desert East of Newman (R.P. Hart 964) were recorded during the July 2007 flora survey for Clearing Permit CPS 2192/1 (Astron Environmental Services, 2007). The two individuals were

located approximately 4 kilometres apart (Astron Environmental Services, 2007). Astron Environmental Services (2007) has reported that the species was well known to the aboriginal traditional owner representatives present during the survey. Given the distance separating the two recorded individuals of *Thysanotus* sp. Desert East of Newman (R.P. Hart 964), it is considered that the species is probably sparsely scattered, but not uncommon on the plains in the locality (Astron Environmental Services, 2007).

Astron Environmental Services (2008) recorded two species, *Aristida hygrometrica* and *Abutilon trudgenii*, that do not appear to have been previously recorded in the Kintyre area. *Aristida hygrometrica* has previously been recorded from the Northern (Kimberley) Botanical Province and the northern part of the Pilbara biogeographic region, whilst *Abutilon trudgenii* has only been recorded from the Pilbara IBRA region (Astron Environmental Services, 2008; Western Australian Museum, 2008). *Aristida hygrometrica* was recorded from one location in the survey area and was also recorded during a nearby survey in July 2007 survey where it was observed in a minor *Eucalyptus victrix* flowline (Astron Environmental Services, 2008). No information was provided for *Abutilon trudgenii*. Given that *Aristida hygrometrica* and *Abutilon trudgenii* appear to be range extensions from their previously known distributions, these species are considered to have significant conservation value for the area (Astron Environmental Services, 2008). However, due the isolated location of the application areas and limited botanical survey work that has been undertaken throughout the Kintyre area, there is the possibility that *Aristida hygrometrica* and *Abutilon trudgenii* are poorly collected and more widely distributed than currently known (Astron Environmental Services, 2008; 2007). The proposed clearing activities are not likely to significantly impact on *Aristida hygrometrica* and *Abutilon trudgenii.*

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

Methodology

Astron Environmental Services (2007)
Astron Environmental Services (2008)
Florabase (2008)
GIS Database:
- Declared Rare and Priority Flora List
Western Australian Museum (2008)

(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, or in close proximity to the clearing application area (GIS Database). The nearest known TEC is located approximately 250 kilometres south-west of the application area (GIS Database). The proposed clearing is unlikely to impact on any known TEC's.

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

Methodology

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 area applied to clear is within the Little Sandy Desert Interim Biogeographic Regionalisation for Australia (IBRA) region (GIS Database). According to Shepherd et al. (2001) approximately 100% of the pre-European vegetation remains (see table).

The vegetation of the application area has been mapped as Beard Vegetation Association 99: Hummock grasslands, shrub steppe; *Acacia coriacea* & Hakea over hard Spinifex, *Triodia basedowii*; and Beard Vegetation Association 117: Hummock grasslands, grass steppe; soft Spinifex (GIS Database).

According to Shepherd et al., (2001) approximately 100% and 96.4% of Beard Vegetation Associations 99 and 117 remain at State level respectively, whilst approximately 100% of Beard Vegetation Associations 99 and 117 remain at the regional level.

Beard Vegetation Associations 99 and 117 are well represented within conservation reserves in the Little Sandy Desert bioregion with approximately 27% and 36.2% of these vegetation types represented in reserves respectively (Shepherd et al. 2001).

According to the Bioregional Conservation Status of Ecological Vegetation Classes, the conservation status for the Little Sandy Desert IBRA region and Beard Vegetation Associations 99 and 117 is of “Least Concern” (Department of Natural Resources and Environment, 2002).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-european % in IUCN Class I-IV Reserves
IBRA Bioregion – Little Sandy Desert	11,089,900	11,089,900	~100.0	Least Concern	4.6
Beard veg assoc. – State					
99	528,692	528,692	~100	Least Concern	27
117	919,750	886,791	~96.4	Least Concern	13.2
Beard veg assoc. – Bioregion					
99	526,655	526,655	~100	Least Concern	27
117	287,251	287,251	~100	Least Concern	36.2

* 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
- 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

There are no permanent wetlands or watercourses within the application area (GIS Database).

The application area intercepts one tributary of the seasonally flowing Yandagooge Creek - west branch (GIS Database; Astron Environmental Services, 2008). Boxcut Mining Pty Ltd (2008) has indicated that a new track will be cleared for the creek crossing. Aerial imagery indicates that the proposed access track also has the potential to intercept several ephemeral drainage lines that flow into the Yandagooge Creek tributary (Astron Environmental Services, 2008). Astron Environmental Services (2008) has identified a total of four vegetation units within the application area which are indicative of vegetation growing in association with a watercourse or wetland. These include:

- Acacia spp. shrublands and scrubs over Triodia spp. (mainly *Triodia epactia*) hummock grasslands creeklines.
- *Eucalyptus camaldulensis* var. *obtusa* creeklines.
- *Eucalyptus leucophloia* minor creeklines.
- Other creekline, flood bank and wet depression vegetation - *Acacia inaequilatera, Acacia colei* var. *colei* scattered tall shrubs over *Gossypium australe*, *Acacia ancistrocarpa* high shrubland over scattered low shrubs over hummock grassland (Astron Environmental Services, 2008).

Boxcut Mining has submitted a detailed clearing application area for the proposed extension to the exploration programme (Astron Environmental Services, 2008; Boxcut Mining Pty Ltd, 2008). Boxcut Mining Pty Ltd (2008) has indicated that the exploration access track will be restricted to a width of approximately 3 metres. The Assessing Officer notes that the application area comprises of a 50 metre buffer in order to select an access pathway which minimises the impact to native vegetation (Boxcut Mining Pty Ltd, 2008). Boxcut Mining Pty Ltd (2008) has advised that there will be no clearing for drill pads within 50 metres of the edge of banks of watercourses or creek lines. The applicant has indicated that some sandy creek line or watercourse crossings with gently sloping banks can be crossed with the only disturbance being the vehicle tracks in the sand. In areas where a creek line or watercourse has a steep bank then some material will be required to be pushed outwards from the creek bed in order to obtain a gradient that the exploration equipment can traverse (Boxcut Mining Pty Ltd, 2008). It is the proponent's responsibility to liaise with the Department of Water to determine whether Bed and Banks Permit is required for the proposed works.

Given that the proposed access track will be restricted to a width of approximately 3 metres and that the application area has incorporated a 50 metre buffer in order to select an access pathway which minimises the impact to native vegetation, the proposed clearing is likely to have a minimal impact on native vegetation growing in association with a creek line or watercourse.

The Assessing Officer recommends should the permit be granted, that a condition be imposed on the permit for the purpose of restricting clearing for drill pads near watercourses or creek lines.

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

Methodology
Astron Environmental Services (2008)
Boxcut Mining Pty Ltd (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

The application area is located on the northern side of the Rudall River National Park, in ranges that lie between the Great Sandy Desert and the Little Sandy Desert (Astron Environmental Services, 2007). The eastern part of the Kintyre Rocks area is predominately quaternary alluvial and eolian sand plain (Geological Survey of Western Australia, 1993; Astron Environmental Services, 2007). Some small areas of playa and clay pan deposits occur on the plains, particularly near the base of ridge slopes. The western part of the Kintyre Rocks area includes hills dissected by broad valleys of alluvial and eolian sand plain. Most of the application area across the Kintyre Rocks area is located on the plains in the valleys between the hills, but some sections of the application area cross hill slopes (Astron Environmental Services, 2007). The hills in the Kintyre Rocks area consist of quartzite ridges and slopes, orthogneisses derived from granite and prophorytic biotite and Yandagooge Formation metasedimentary rocks (Geological Survey of Western Australia, 1993; Astron Environmental Services, 2007).

Astron Environmental Services (2008) recorded soil types at sampling points during the flora and vegetation survey. The soils of the application area appear to consist of red-brown sand and red-brown loamy sand on the plains with course sand and shallow stony to rocky mantles in creek lines and minor drainage lines (Astron Environmental Services, 2008). Isolated areas of ironstone and quartz outcrops were recorded in locations where the application area crosses slopes of rocky hills and low rises (Astron Environmental Services, 2007). There is likely to be a moderate risk of soil erosion occurring on the sandy plains and for the course sandy creek lines following high intensity rainfall events.

Based on the above, the proposal may be at variance to this Principle, however, the risk of erosion can be managed by the use of appropriate clearing management measures.

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Boxcut Mining Pty Ltd (2008) has advised that a tracked drill rig will be used during exploration works and as a result, there will be little or no blade assisted clearing on drill pads. The tracked drill rig will be driven into position and then a support truck will be driven in and parked alongside the drill rig, with two support utilities parked nearby (Boxcut Mining Pty Ltd, 2008). New and existing access tracks will be restricted to a width of approximately 3 metres and Boxcut Mining has advised that all clearing will be raised blade unless there is a need to turn a rock or a sharp hummock (Boxcut Mining Pty Ltd, 2008). Topsoil and vegetation will be collected and stockpiled and for use in future rehabilitation (Boxcut Mining Pty Ltd, 2008). The clearing management techniques to be utilised by Boxcut Mining are likely to minimise the disturbance to native vegetation and subsequently minimise the risk of soil erosion occurring within the application area and to the surrounding local area.

The Assessing Officer recommends should the permit be granted, that conditions be imposed on the permit for the purpose of rehabilitation and riparian vegetation protection in order to minimise the risk of soil erosion and land degradation.

Methodology
Astron Environmental Services (2007)
Astron Environmental Services (2008)
Boxcut Mining Pty Ltd (2008)
Geological Survey of Western Australia (1993)

(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 located within the Rudall River National Park (1978 boundary) Register of National Estate (GIS Database). The Kintyre area, including the area under application, was formally part of the Rudall River National Park which was proclaimed in 1977 (SEA US, 1999). However, in 1993 the boundary of the Rudall River National Park was altered to excise the Yandagooge Creek System and at the same time an area

of similar size was added to the western end (Uranium Information Centre, 2008; Uranium Institute, 1997). The area excised from the Rudall River National Park included the Kintyre area which encompasses the clearing application area (GIS Database; SEA US, 1999; Boxcut Mining Pty Ltd, 2007). The Rudall River National Park was placed on the Register when it was initially proclaimed in 1977, however the excised portion of the National Park has never been removed from the Register of National Estate (SEA US, 1999; GIS Database). Despite being excised from the Rudall River National Park, the Kintyre area remains listed on the Register of National Estate (GIS Database).

At 1,283,706 hectares, the Rudall River National Park is the largest national park in Western Australia (Naturebase, 2008). The national park is significant for maintaining on-going geomorphic and ecological processes within a tropical desert environment (Australian Heritage Database, 2007). It contains an entire landscape system which includes dunefields, tablelands, river system, alluvial formations, saline lakes and palaeodrainage lines (Australian Heritage Database, 2007). The National Park is rich in biodiversity, containing more than 400 flora species, including significant communities of *Eucalyptus camaldulensis* and *Melaleuca leucodendra* riparian woodlands which are not well represented extensively in other sites in the Great Sandy desert (Australian Heritage Database, 2007). The area acts as refugium habitat for numerous rare species for flora and fauna of the Great Sandy Desert, containing approximately 90% of the total bird fauna of the Great Sandy Desert. The area contains Lake Dora which periodically acts as an important waterbird habitat, and also contains an important population of the rare greater Bilby (*Macrotis lagotis*) on the eastern side of Lake Dora (Australian Heritage Database, 2007). In addition to this, Rudall River National Park contains 6 of the 9 frog species found in the Great Sandy Desert, and has a diverse and varied reptile fauna (Australian Heritage Database, 2007).

Under the clearing application, Boxcut Mining has clearly indicated the location of the proposed access tracks and drill pad locations (Boxcut Mining Pty Ltd, 2008). The application area for the proposed access track consists of a 50 metre buffer in order to select an access pathway which minimises the impact to native vegetation. The proposed clearing for the exploration access track will be predominately raised blade where possible and restricted to approximately 3 metres in width (Boxcut Mining Pty Ltd, 2008). The applicant has advised that existing tracks will be re-cleared and utilised where possible (Boxcut Mining Pty Ltd, 2008). Aerial imagery and Geographic Information System (GIS) mapping indicates that Boxcut Mining propose to enter the application area via an existing track which is located in the eastern portion of the application area (Boxcut Mining Pty Ltd, 2008). The existing track intersects with another track which runs through the Rudall River National Park. (GIS Database; Boxcut Mining Pty Ltd, 2007).

Two weed species; Buffel Grass (*Cenchrus ciliaris*) and Pie Melon (*Citrullus lanatus*), were recorded within the application area (Astron Environmental Services, 2008). As vehicles will be accessing the application area through the Rudall River National Park, the Assessing Officer recommends should the permit be granted, that conditions be imposed on the permit for the purposes of weed management.

The application area and surrounding Kintyre Rocks area contains vegetation types and habitats which are well represented within the 1,283,706 hectare Rudall River National Park (Naturebase, 2008; Uranium Information Centre, 2008; GIS Database). The relatively small area of proposed clearing (13.1 hectares) is to be carried out across a large portion of the Kintyre Rocks area (GIS Database). The Kintyre Rocks area which surrounds Rudall River National Park remains largely uncleared (GIS Database). As the proposed clearing is for exploration purposes which involve access tracks, drill pads and sumps, the vegetation proposed to be cleared is unlikely to be regarded as a significant buffer for, or ecological linkage to Rudall River National Park.

The proposed clearing is unlikely to impact on the environmental values of Rudall River National Park or the Rudall River Register of National Estate.

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

Methodology

Astron Environmental Services (2008)
Australian Heritage Database (2007)
Boxcut Mining Pty Ltd (2007)
Boxcut Mining Pty Ltd (2008)
Naturebase (2008)
SEA US (1999)
Uranium Information Centre (2008)
Uranium Institute (1997)
GIS Database:
- CALM Managed Lands and Waters
- Clearing Instruments
- Clearing Regulations - Environmentally Sensitive Areas
- Register of National Estate
- Pre-European Vegetation

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

Comments

Proposal is not likely to be at variance to this Principle

There are no Public Drinking Water Source Areas in close proximity to the application area (GIS Database). Groundwater salinities of the application area have been recorded in the range 1,000 - 3,000 milligrams/Litre Total Dissolved Solids (GIS Database). The proposal involves clearing for access tracks and drill pads using raised blade clearing techniques where possible. Boxcut Mining Pty Ltd (2008) has advised that blade down clearing will only be utilized in instances where there is a necessity to turn a rock or some kind of sharp hummock. The Assessing Officer notes that the proposed exploration clearing activities will be undertaken across a large portion of the Kintyre Rocks area (Boxcut Mining Pty Ltd, 2008). Given the relatively minor and widespread nature of the proposed clearing activities, the proposal is unlikely to cause an increase in groundwater recharge or significantly impact on groundwater quality in the Kintyre Rocks area.

There are no permanent wetlands or watercourses within the clearing application area (GIS Database). The proposed clearing for the exploration access track occurs in the Rudall River Catchment and intercepts a tributary of the seasonally flowing Yandagooge Creek - west branch, as well as several ephemeral drainage lines (GIS Database). These watercourses are likely to remain dry for the majority of the year and only hold surface water for short periods following significant rainfall events. The proposed clearing is unlikely to impact on surface water quality.

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

Methodology

Boxcut Mining Pty Ltd (2008)
GIS Database:
- Groundwater Salinity, Statewide
- 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 Rudall subregion is characterised by an arid climate with summer rainfall (Kendrick, 2001). The application area experiences mean annual rainfall of approximately 250 millimetres and mean annual evaporation of 3,800 millimetres (Beard and Webb, 1968; Astron Environmental Services, 2007; GIS Database). As a result, it would be expected that there would be little surface flows during normal season rains.

The proposal involves minor clearing for exploration access tracks and drill pads across a large portion of the Kintyre Rocks area (Boxcut Mining Pty Ltd, 2008; GIS Database). Access tracks will be restricted to a width of approximately 3 metres and raised blade clearing will be used on even ground or where possible, and drill pads and sumps will be restricted to a size of approximately 400 square metres and 25 square metres respectively (Boxcut Mining Pty Ltd, 2008). The proposed clearing is unlikely to cause, or exacerbate the incidence of flooding.

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

Methodology

Astron Environmental Services (2007)
Beard and Webb (1968)
Boxcut Mining Pty Ltd (2008)
Kendrick (2001)
GIS Database:
- Rainfall, Mean Annual
- Evaporation Isopleths
- Clearing Instruments

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

Comments

There is one Native Title claim over the area under application (WC96/078). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining 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 Aboriginal Sites of Significance (Site ID: 11785 and 11786) that intercept the application area (Boxcut Mining Pty Ltd, 2008; 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.

No submissions have been received in relation to this proposal.

It is the proponent's responsibility to liaise with the DEC and the DoW 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 Boxcut Mining Pty Ltd (2008)
GIS Database:
- Native Title Claims
- Sites of Aboriginal Significance

4. Assessor's comments

Comment

The clearing principles have been addressed and the proposed clearing is at variance to Principle (f), may be at variance to Principle (b) and (g), is not likely to be at variance to Principle (a), (c), (d), (h), (i) and (j) and 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, native fauna management, riparian vegetation protection, rehabilitation, recording areas cleared and reporting against the permit conditions.

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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.