



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4525/1
 Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Navigator (Bronzewing) Pty Ltd**

1.3. Property details

Property: Mining Lease 36/146
 Local Government Area: Shire of Leonora
 Colloquial name: Bronzewing Gold Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
 Decision Date: 22 September 2011

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description Beard vegetation associations have been mapped for the whole of Western Australia. Two Beard vegetation associations have been mapped within the application area (GIS Database; Shepherd, 2009):

- 18: Low woodland; mulga (*Acacia aneura*); and
- 107: Hummock grasslands, shrub steppe; mulga and *Eucalyptus kingsmillii* over hard spinifex.

A flora and vegetation survey was conducted by staff from Ecologia in February 1993 (Outback Ecology, 2006). This survey identified six vegetation associations within the application area:

- Mulga *Acacia aneura* woodlands;
- Mid dense *Acacia* Tall Shrublands;
- Open Tall *Acacia* Shrublands;
- Low mixed *Acacia/Senna* Breakaway;
- Mixed *Acacia/Senna* Shrubland;
- Mixed *Eremophila/Acacia* Shrubland;
- Low Open *Eremophila* Shrubland; and
- Sparse Low Mixed Shrubland.

Clearing Description Navigator Bronzewing PL is proposing to clear up to 57.38 hectares of native vegetation for the purpose of expanding the Herbert waste rock landform, adjacent to the Cockburn pit within Mining Lease 36/146.

Clearing will be conducted using a bulldozer and grader.

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

To

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

Comment

The application area is located within the Murchison region of Western Australia and is situated approximately 59 kilometres north east of Leinster.

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 proposed clearing is located approximately 59 kilometres north east of Leinster in the Murchison Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). At a broad scale the vegetation of this region can be described as mallee on sandplains, samphire around small salt lakes, mallee and patches of woodland on clay, scrub-heath on sandstone and mallee with Boree on calcareous clay and loam (CALM, 2002).

A flora and vegetation survey of the application area was conducted by staff from Ecologia in February 1993 (Navigator Resources Limited, 2011). A total of 103 flora taxa from 24 families were recorded within the application area (Navigator Resources Limited, 2011). The majority of the application area is covered by mulga woodlands, which are common through the Murchison bioregion. It is therefore considered unlikely that the application area contains a greater level of biodiversity than other areas within the Murchison bioregion.

An additional Declared Rare Flora (DRF) and Priority Flora search was undertaken over the application area by Outback Ecology (2006) in 2004. No DRF or Priority flora taxa were located during this survey (Outback Ecology, 2006).

There are no known Priority Ecological Communities (PEC's) within the application area (GIS Database). The nearest PEC is approximately 17 kilometres south west of the application area (GIS Database). At this distance there is little likelihood of any impact to the PEC as a result of the proposed clearing.

No weed species have been recorded within the application area during the flora surveys conducted by Outback Ecology (2006) and Ecologia (1993). Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. This can in turn lead to greater rates of infestation and further loss of biodiversity if the area is subject to repeated fires. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

A fauna assessment of the application area was undertaken by Ninnox Wildlife Consulting (1993). This survey identified 50 bird, six native mammal and six reptile species within the application area with a further 65 bird, 25 native mammal, eight frog and 69 reptile species expected to occur (Navigator Resources Limited, 2011). This is similar to the results from a fauna survey conducted by Ninnox Wildlife Consulting over the adjacent Mt McClure Project area (Navigator Resources Limited, 2011). It is therefore considered unlikely that the application area contains greater faunal diversity than other areas within the Murchison bioregion.

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

Methodology

CALM (2002)
Ecologia (1993)
Navigator Resources Limited (2011)
Ninnox Wildlife Consulting (1993)
Outback Ecology (2006)
GIS Database:
- IBRA WA (regions – subregions)
- Threatened Ecological Sites Buffered

(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 survey of the application area was conducted by staff from Ninnox Wildlife Consulting in 1989 (Navigator Resources Limited, 2011). This survey identified the potential for the following four conservation significant fauna species to occur within the application area (Navigator Resources Limited, 2011):

- Peregrine Falcon (*Falco peregrinus*) (Schedule 4) – Unlikely to occur within the application area due to lack of suitable habitat such as cliffs, watercourses and suitable habitat trees;
- Princess Parrot (*Polytelis alexandrea*) (Vulnerable) – while the favoured habitat of Mulga over Spinifex is present within the application area, this species is generally found further east of the application area in the Gibson, Great Victoria and Great Sandy Deserts. Additionally this species is highly nomadic, therefore unlikely to be significantly impacted by the proposed clearing;
- Lesser Stick-nest Rat (*Leporillus apicalis*) (Schedule 2) – presumed extinct in Western Australia;
- Mulgara (*Dasyercus cristicauda*) (Vulnerable, Schedule 1) – preferred habitat of Mulga woodland over mature Spinifex grassland of *Triodia basedowii* is present within the application area. However, the application area is located adjacent to existing mining facilities and has numerous existing tracks through the area (GIS

Database).

The habitats within the application area are common throughout the Goldfields area and therefore not considered to be significant habitat for fauna indigenous to Western Australia.

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

Methodology Navigator Resources Limited (2011)
GIS Database:
- Mount Keith 50cm Orthomosaic – Landgate 2005 (Image)

(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**
No Declared Rare Flora (DRF) species are known to occur within the application area (GIS Database).

A targeted DRF survey was conducted in 2004 by staff from Outback Ecology (2006). No DRF taxa were recorded within the application area during this survey (Outback Ecology, 2006).

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

Methodology Outback Ecology (2006)
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 records of Threatened Ecological Communities (TEC's) within the application area (GIS Database). The nearest known TEC is approximately 90 kilometres south west of the application area (GIS Database). At this distance there is little likelihood of any impact to the TEC as a result of the proposed clearing.

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

Methodology GIS Database:
- Threatened Ecological Sites Buffered

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

Comments **Proposal is not at variance to this Principle**
The application area lies within the Murchison Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). Shepherd (2009) reports that approximately 100% of the pre-European vegetation remains in the Pilbara bioregion.

The vegetation in the application area has been broadly mapped as Beard vegetation associations:

18: Low woodland; mulga (*Acacia aneura*); and
127: 107: Hummock grasslands, shrub steppe; mulga and *Eucalyptus kingsmillii* over hard spinifex.

According to Shepherd (2009) approximately 100% of beard vegetation associations 18 and 107 remain within the Murchison bioregion (see table on next page).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Murchison	28,120,587	28,120,587	~100	Least Concern	~1.06
Beard vegetation associations - State					
18	19,892,305	19,890,275	~99.99	Least Concern	~2.13
107	2,815,387	2,815,387	~100	Least Concern	~1.65
Beard vegetation associations - Bioregion					
18	12,403,172	12,403,172	~100	Least Concern	~0.37
107	2,792,383	2,792,383	~100	Least Concern	~1.67

* Shepherd (2009)

** Department of Natural Resources and Environment (2002)

The vegetation within the application area is not considered to be a remnant of native 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 (2009)
GIS Database:
- IBRA WA (regions – 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 not at variance to this Principle

According to available GIS Databases there are no wetlands or watercourses within the application area (GIS Database).

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

Methodology GIS Database:
- Hydrography, linear

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

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

The application area lies within the Bullimore Land System (GIS Database). The Bullimore land system is characterised by extensive sandplains supporting Spinifex hummock grasslands (Pringle et al., 1994). According to Pringle et al. (1994), this land system is not prone to erosion.

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

Methodology Pringle et al. (1994)
GIS Database:
- Rangeland Land System Mapping

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

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

The proposed clearing is not located within a conservation reserve (GIS Database). The nearest conservation reserve is Wanjarri Nature Reserve, located approximately 8 kilometres west of the application area (GIS Database). At this distance it is unlikely that the proposed clearing will impact on the environmental values of any conservation areas.

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

Methodology GIS Database:
- DEC Tenure

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

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

According to available GIS Databases, the application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The nearest PDWSA is the Depot Springs Water Reserve, approximately 70 kilometres south west of the application area (GIS Database). At this distance it is unlikely that the proposed clearing will impact on the water quality of the Depot Springs Water Reserve (GIS Database).

The groundwater salinity within the application area is approximately 500 - 1,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). It is considered unlikely that the proposed clearing of 57.38 hectares of native vegetation within the Yilgarn-Goldfields Groundwater Province (29,644,595 hectares) will cause salinity levels within the application area to alter significantly.

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

Methodology GIS Database:
- Groundwater Provinces
- Groundwater Salinity, Statewide
- Public Drinking Water Source Area (PDWSA)

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

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

The application area experiences a semi-arid (Dry) Warm Mediterranean climate with an annual average rainfall of approximately 260 millimetres (CALM, 2002; Navigator Resources Limited, 2011). Surface flow within the region occurs after heavy rainfall and has sheet flow characteristics (Navigator Resources Limited, 2011). The evaporation rate within the application area is approximately 3,600 millimetres per year (GIS Database). It is therefore considered unlikely that the proposed clearing will cause or exacerbate the incidence or intensity of flooding.

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

Methodology CALM (2002)
Navigator Resources Limited (2011)
GIS Database:
- Evaporation Isopleths

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

Comments

There are no Native Title Claims over the area under application (GIS Database). The mining tenure 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 Aboriginal Sites of Significance within the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment and Conservation and the Department of Water, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

The clearing permit application was advertised on 1 August 2011 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received in relation to the proposed clearing.

Methodology GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims – Registered with the NNTT

4. References

- CALM (Department of Conservation and Land Management) (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions.
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- Ecologia (1993) Bronzewing Gold Project Notice of Intent Botanical Assessment Survey Great Central Mines. Unpublished report dated March 1993.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Navigator Resources Limited (2011) Clearing Permit Application for M34/146. Unpublished Report prepared by Outback Ecology, Western Australia.
- Ninox Wildlife Consulting (1993) Vertebrate Fauna Assessment of the Proposed Bronzewing Gold Project.
- Outback Ecology (2006) Bronzewing - Mt McClure Proposed Clearing of Native Vegetation for the Bronzewing - Mt McClure Project. Unpublished report dated September 2006.
- Pringle, H.J.R., Van Vreeswyk, A.M.E., and Gilligan, S.A. (1994) An Inventory and Condition Survey of the North-Eastern Goldfields, Western Australia, Department of Agriculture.
- Shepherd, D.P. (2009) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
CALM	Department of Conservation and Land Management (now DEC), Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DEC), Western Australia
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DoE	Department of Environment (now DEC), Western Australia
DoIR	Department of Industry and Resources (now DMP), Western Australia
DOLA	Department of Land Administration, Western Australia
DoW	Department of Water
EP Act	Environmental Protection Act 1986, Western Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
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 Act	Rights in Water and Irrigation Act 1914, Western Australia
s.17	Section 17 of the Environment Protection Act 1986, Western Australia
TEC	Threatened Ecological Community

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.