



1. Application details

1.1. Permit application details

Permit application No.: 129/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: Western Areas NL

1.3. Property details

Property: M77/582
Colloquial name: Mining Lease M77/582 near Hyden - Norseman Rd Forrestania

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
15		Cutting	Mining

2. Site information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Beard 511: Medium woodland; salmon gum & morrel	Vegetation within 15ha area under application is dense shrublands in pristine condition. Some very small areas are already cleared due to exploratory drilling.	Pristine: No obvious signs of disturbance (Keighery 1994)	Vegetation condition assessed during site visit carried out by DoE assessment officer.
Beard 2048: Shrublands; scrub-heath in the Mallee Region.	Species diversity was very high.		

(Hopkins et al. 2001).

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 at variance to this Principle

(a1) Native vegetation should not be cleared if it is representative of an area of outstanding biodiversity in the Bioregion.

(a2) Native vegetation should not be cleared if it has higher diversity of indigenous aquatic or terrestrial plant or fauna species than native vegetation of that ecological community in good or better condition in the Bioregion.

Lake Cronin reserve is a significant habitat for rare species in an area that has been extensively cleared.

- Flora: From site inspection of the area under application, the flora species diversity was very high with high species turnover. Flora and vegetation studies identified 39 families, 91 genera and 219 taxa within the study area; 11 plant communities were identified (Frost O'Conner & Associates 2004).

- Vertebrate species (Craig & Bamford 2004): Due to large diversity of habitats, the area is likely to support as many as 10 frog species, 48 reptile species, 115 bird species and 29 mammal species. Four species of conservation concern were identified during site survey. Three significant species have also been recorded.

Methodology Site inspection (12 Oct 2004)
Craig & Bamford (2004)
Frost O'Conner & Associates (2004)

(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

- (b1) Native vegetation should not be cleared if it is or is likely to be habitat for fauna that is declared Specially Protected under the Wildlife Conservation Act.*
- (b2) Native vegetation should not be cleared if it is or is likely to be habitat for Priority Listed Fauna.*
- (b3) Native vegetation should not be cleared if it is or is likely to be habitat for fauna that is otherwise significant.*
- (b4) Native vegetation should not be cleared if it provides significant habitat for fauna species in the local area.*
- (b5) Native vegetation should not be cleared if it maintains ecological functions and processes that protect significant habitat for fauna.*

Fauna report suggested that as many as 10 frog species, 48 reptile species, 115 bird species and 29 mammal species are present in the area under application. This includes a high number of species of conservation concern mapping (Craig & Bamford 2004).

- 10 species of conservation concern are also likely to be present based on distribution.
- Four species of conservation concern were identified during site survey (peregrine falcon, short-billed black-cockatoo, western rosella inland race, and rainbow bee-eater).
- Three significant species have also been recorded by mine staff (carpet python, malleefowl, and shy heathwren).
- Mining operations are likely to directly threaten the habitat for the Lake Cronin Snake (*Echiopsis atriceps*), listed as vulnerable.

Methodology The Action Plan for Australian Reptiles. Australian Heritage Database: Lake Cronin. Craig, M.J. & Bamford, A.R. (2004) Site survey of the proposed flying fox, new morning, cosmic boy and digger rocks nickel mines near middle ironcap. DoE TRIM ref TR 4887

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

Comments Proposal may be at variance to this Principle

- (c1) Native vegetation should not be cleared if it is necessary for the continued in situ existence of populations of Declared Rare Flora under the Wildlife Conservation Act 1950.*
- (c2) Native vegetation should not be cleared if it is necessary for the continued in situ existence of other significant flora declared by the Minister for the Environment under s.51B(1)(c).*
- (c3) Native vegetation should not be cleared if it is necessary for the continued in situ existence of significant habitat for priority flora species published by the Department of Conservation and Land Management.*

From site inspection of the area under application, the flora species diversity was very high with high species turnover. Flora and vegetation studies identified 39 families, 91 genera and 219 taxa within the study area; 11 plant communities were identified (Frost O'Conner & Associates 2004).

No DRF have been found within the area under application although the nearest known specimen of *Eucalyptus steedmanii* is only 2.6km to the south of the area under application.

Six priority-listed flora have been located on other areas of the mine site (Frost O'Conner & Associates 2004): one Priority 2, four Priority 3, and one Priority 4 species. Additionally, a new species, *Baeckea* sp., was collected in Feb 2004 and is currently being considered for addition to the CALM Priority List. All species are represented outside the mine site disturbance area.

The proposed mine development will involve the removal of 50 *Grevillea baxteri* (Priority 4 species). However this is unlikely to have a significant impact due to the local and regional abundance of the species, in addition to the small scale of the proposed mine (Frost O'Conner & Associates 2004).

Methodology Frost O'Conner & Associates (2004) Flora and vegetation studies flying fox Forestania Nickel Project. Prepared for Western Areas NL, July 2004.
GIS database: Declared Rare and Priority Flora List - CALM 13/08/03.

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

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

There are no known Threatened Ecological Communities within the site.

Methodology GIS databases: Threatened Ecological Communities - CALM 15/7/03

(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

(e1) Native vegetation should not be cleared if the remaining native vegetation represents less than 30%, or the clearing would reduce the representation of remaining native vegetation to less than 30% in the Bioregion (or subregion where applicable).

The vegetation at the site is a component of Beard Vegetation Associations 2049 and 511 (Hopkins et al. 2001) of which there is 46.1% and 53.6% of the pre-European extent remaining, respectively (Shepherd et al. 2001). This vegetation type and the bioregion are considered of 'least concern' for bioregional conservation due to these high representation values (Department of Natural Resources and Environment 2002).

	Pre-European area (ha)	Current extent (ha)	Remaining %*	Conservation status**	Reserves/CALM-managed land, %
IBRA Bioregion					
- Mallee	7,404,398	4,081,089	55.1	Least Concern	
- Coolgardie	12,917,718	12,719,084	98.5	Least Concern	
Shire - Kondinin	737,192	369,708	50.1	Least Concern	
Beard veg type - 2049	383,125	176,608	46.1	Depleted	13.6
Beard veg type - 511	409,458	219,324	53.6	Least Concern	22.7

* (Shepherd et al. 2001)

** (Department of Natural Resources and Environment 2002)

Methodology

Shepherd et al. (2001)
Hopkins et al. (2001)
GIS databases:
- Pre-European Vegetation - DA 01/01
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00

(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 may be at variance to this Principle

The site drains in Lake Cronin, however some water is likely to be diverted as a result of dewatering and other earth works. Lake Cronin is a fresh water lake, and changes to surface flows (such as small decreases) may impact the lake. Further study and modelling is required to determine the extent of flow reductions into the lake.

Methodology

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

Comments Proposal is not at variance to this Principle

Removal of vegetation is not predicted to impact detrimentally on salinity, wind erosion, water erosion or waterlogging (DAWA 2004).

Methodology DAWA (2004).

(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 may be at variance to this Principle

(h1) Native vegetation should not be cleared if it contributes significantly to the environmental values of a conservation area.
(h2) Native vegetation should not be cleared if that vegetation provides a buffer to a conservation area.
(h3) Native vegetation should not be cleared if the land contributes to an ecological linkage to a conservation area.
(h4) Native vegetation should not be cleared if it provides habitats not well represented on conservation land.

The site is within an area listed as significant under the Register of National Estate. It is also within a few km of an A Class Reserve and adjacent to a proposed C Class Reserve. The site is also within a System 11 area: Windich Spring.

The entire area is considered to be an Environmentally Sensitive Area.

Methodology Australian Heritage Database.
 GIS databases:
 - CALM Managed Lands and Water - CALM 01/08/04
 - Environmentally Sensitive Areas - DOE 22/10/04

(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 may be at variance to this Principle**

It is unlikely that the clearing operation will greatly impact on groundwater quality and that. Hydrogeological report suggests that drawdown will not have an impact on vegetation. However the impact on Cronin Lake vegetation as a result of 2,000,000kL of groundwater being drawn several kilometres requires monitoring.

Methodology

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

Comments **Proposal is not at variance to this Principle**

Removal of vegetation is not predicted to impact detrimentally on flooding (DAWA 2004).

Methodology DAWA (2004).

(k) Planning instrument or other matter.

Comments No comment made.

Methodology

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Mining	Cutting	15	Grant	<p>The Flying Fox minesite is located with the Lake Cronin Area, which is one of a number of areas in the wheatbelt region that is significant for rare species. Although the integrity of the area is listed as intact, the Department of Environment and Heritage (DEH) have listed mining as a threatening process to this registered Heritage Area.</p> <p>Due to the relatively small area of clearing to be proposed, it is recommended that approval is granted. However, incremental clearing within the Heritage Area for further development may place the location at risk.</p> <p>The extent of rare flora and fauna and the impact of clearing requires further study in the area before additional clearing proposals should be considered. New mining proposals within the heritage area may require comprehensive environmental assessment by the Environmental Protection Authority (EPA) and DEH.</p>

5. References

DAWA (2004) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture Western Australia. DoE TRIM ref XXXXX.

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.

Hopkins, A.J.M., Beeston, G.R. and Harvey J.M. (2001) A database on the vegetation of Western Australia. Stage 1. CALMScience after J. S. Beard, late 1960's to early 1980's Vegetation Survey of Western Australia, UWA Press.

Keighery, BJ (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

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.