



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 6412/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: MacPhersons Resources Limited

1.3. Property details

Property: Mining Lease 25/355
Mining Lease 26/29
Mining Lease 26/277
Mining Lease 26/318
Mining Lease 26/490
Miscellaneous Licence 26/266
Miscellaneous Licence 26/240
Local Government Area: City of Kalgoorlie –Boulder
Colloquial name: Boorara Prospect

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
100		Mechanical Removal	Mineral Production and Associated Infrastructure

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 5 February 2015

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

The clearing permit application area has been broadly mapped as Beard vegetation association:
468: Medium woodland, salmon gum and goldfields blackbutt.

A flora and vegetation survey conducted by Mattiske Consulting Pty Ltd (Mattiske, 2014) over the application area identified the following 17 vegetation types:

E1: Very Open Woodland of *Eucalyptus ravidia*, *Eucalyptus stricklandii*, *Eucalyptus transcontinentalis* and *Eucalyptus salmonophloia* over mixed *Eremophila* species over *Atriplex nummularia* and mixed shrubs on flats with red/brown clay soils and scattered quartz pebbles.

E3: Open Woodland of *Eucalyptus stricklandii* with occasional *Eucalyptus ravidia* and *Eucalyptus salmonophloia* over *Casuarina pauper* over *Eremophila interstans* subsp. *virgata* and *Exocarpos aphyllus* over *Atriplex nummularia*, *Atriplex vesicaria* and mixed shrubs on flats with rocky red/brown clay soils.

E4: Open Woodland of *Eucalyptus salmonophloia* with occasional *Eucalyptus transcontinentalis* and *Eucalyptus celastroides* subsp. *celastroides* over *Atriplex nummularia*, *Exocarpos aphyllus* and *Eremophila interstans* and mixed shrubs on flats with red/brown clay soils.

E5: Open Low Woodland of *Eucalyptus stricklandii*, *Casuarina pauper* and occasional *Eucalyptus griffithsii* over *Santalum spicatum* and *Acacia burkittii* over *Dodonaea lobulata*, mixed *Eremophila* species and other mixed shrubs over occasional *Triodia scariosa* on flats with red/brown clay soils with scattered ironstone and quartz pebbles.

E6: Open Woodland of *Eucalyptus salmonophloia*, *Eucalyptus celastroides*, *Eucalyptus ?yilgarnensis*, *Eucalyptus ravidia*, and *Eucalyptus stricklandii* over *Eremophila interstans*, mixed *Atriplex* species, *Exocarpos aphyllus*, and mixed shrubs and Chenopods on flats with red/brown clay soils with scattered ironstone pebbles.

E7: Open Woodland of *Eucalyptus griffithsii* and *Eucalyptus lesouefii* over *Acacia burkittii*, mixed *Eremophila* species, *Dodonaea lobulata* and *Atriplex nummularia* over mixed shrubs with red/brown clay soils.

E8: Open Woodland of *Eucalyptus ravidia*, *Eucalyptus stricklandii*, *Eucalyptus transcontinentalis* and *Eucalyptus celastroides* subsp. *celastroides* over *Atriplex nummularia* and mixed shrubs on flats with red/brown clay soils.

E9: Open Woodland of *Eucalyptus griffithsii* over mixed *Acacia* and *Eremophila* species over mixed shrubs on flats with red/brown clay soils.

E10: Thicket of *Eucalyptus griffithsii* over *Acacia* and *Eremophila* species and mixed shrubs on red/brown clay soils with calcrete pebbles.

E11: Low woodland of *Eucalyptus ravidia*, *Melaleuca sheathiana* and occasional *Eucalyptus lesouefii* over *Eremophila* and mixed shrubs on flats with red/brown clay soils and scattered ironstone pebbles.

E12: Closed woodland of *Eucalyptus lesouefii* over mixed *Eremophila* species and *Atriplex nummularia* over mixed shrubs on lower-slopes with red/brown soils.

E13: Closed woodland of *Eucalyptus ravidia* over mixed *Eremophila* species and mixed shrubs on flats with red/brown clay soils.

E14: Open woodland of *Eucalyptus ?lesouefii*, *Eucalyptus griffithsii* and *Casuarina pauper* over *Melaleuca sheathiana*, *Santalum spicatum* and mixed *Eremophila* species over *Atriplex nummularia* and mixed shrubs on flats with red/brown clay soils.

A2: Open Shrubland of *Acacia burkittii* and *Acacia tetragonophylla* with occasional *Santalum spicatum* and *Casuarina pauper* over sparse mixed shrubs on upper slopes with gravel soils and numerous lateritic outcrops.

A3: Open Shrubland of *Acacia burkittii* over *Chenopod* and mixed shrubs on flats with red/brown clay soils.

A4: Open Shrubland of *Acacia ?sibirica* and *Acacia tetragonophylla* over mixed *Eremophila* species over mixed shrubs on flats with red/brown clay soils.

C1: Open *Chenopod* Shrubland of *Atriplex nummularia*, *Atriplex vesicaria* and *Senna artemisioides* subsp. *filifolia* and *Eremophila scoparia* over *Scaevola spinescens* and mixed *Maireana* species on seasonally inundated drainage lines with red/brown clay soils.

Clearing Description

Boorara Prospect.

MacPhersons Resources Ltd proposes to clear up to 100 hectares of native vegetation within a total boundary of approximately 411 hectares, for the purpose of mineral production and associated infrastructure. The project is located approximately 17 kilometres south-east of Kalgoorlie, in the City of Kalgoorlie-Boulder.

Vegetation Condition

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

to

Pristine: No obvious signs of disturbance (Keighery, 1994).

Comment

Vegetation condition was determined by Mattiske (2014) using the Keighery scale.

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 may be at variance to this Principle

The application area is located within the Eastern Goldfields sub-region of the Coolgardie Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). The Eastern Goldfields subregion is dominated by Mallees, *Acacia* thickets and shrubheaths on sandplains. Diverse *Eucalyptus* woodlands occur around salt lakes, on ranges, and in valleys, and dwarf shrublands of samphire are common in salt areas (Kendrick and Stanley, 2003).

A flora and vegetation survey was conducted by Mattiske over the application area in April and September 2014 (Mattiske, 2014). A total of 118 flora taxa (including subspecies and varieties) representing 19 families and 36 genera were recorded from the application area during the flora and vegetation survey (Mattiske, 2014).

No Threatened Ecological Communities, Priority Ecological Communities, Threatened Flora species or vegetation associations of restricted distribution were recorded within the application area during the flora and vegetation field survey (Mattiske, 2014). One potential Priority Flora species *Grevillea ?phillipsiana* (P1) was recorded twice within the application area (Mattiske, 2014). Potential impacts on this flora species as a result of the proposed clearing may be minimised by the implementation of a flora management condition.

A total of four introduced flora species were recorded within the application area during the flora and vegetation survey (Mattiske, 2014). These included *Dittrichia graveolens*, *Hypochoeris* sp., *Oligocarpus calendulaceus* and *Salvia verbenaca*. None of these introduced flora species are Declared Pest or listed as Weeds of National Significance. Potential impacts from weeds may be minimised by the implementation of a weed management condition.

A fauna desktop assessment was conducted by Mattiske over the application area in September 2014. A total of 210 fauna species (consisting of 92 birds, 58 reptiles, 5 amphibians, 19 mammals and 36 invertebrates) have previously been recorded within 20 kilometres of the application area (Mattiske, 2014). From these species, a total of four conservation significant fauna species (*Leipoa ocellata* (Malleefowl), *Egernia stokesii* subsp. *badia* (Western Spiny-tailed skink), *Morelia spilota* subsp. *imbricate* (Carpet Python) and *Ogyris subterrestris* subsp. *petrina* (Arid Bronze Azure Butterfly)) have the potential to occur within the application

area (Mattiske, 2014). None of these species are expected to be restricted to the application area or rely exclusively on fauna habitats present within the application area.

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

Methodology Mattiske (2014)
Kendrick and Stanley (2003)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Pre-European Vegetation
- Threatened and Priority Flora
- 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 desktop assessment was conducted by Mattiske over the application area in September 2014. A total of 210 fauna species have previously been recorded within 20 kilometres of the application area (Mattiske, 2014).

A total of four conservation significant fauna species (*Leipoa ocellata* (Malleefowl), *Egernia stokesii* subsp. *badia* (Western Spiny-tailed skink), *Morelia spilota* subsp. *imbricate* (Carpet Python) and *Ogyris subterrestris* subsp. *petrina* (Arid Bronze Azure Butterfly) have the potential to occur within the application area based on previous records and habitat preferences (Mattiske, 2014). However, none of these species are expected to be restricted to the application area or rely exclusively on fauna habitats present within the application area.

There is a low probability of Malleefowl occurring within the application area because the majority of vegetation is open Eucalypt woodlands which is unsuitable for Malleefowl habitat (Mattiske, 2014).

The fauna habitats within the application area were not considered to be unique and are relatively widespread in the region and surrounding areas (Mattiske, 2014).

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

Methodology Mattiske (2014)

(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

There are no records of Threatened Flora within the application area (GIS Database).

The flora and vegetation survey conducted by Mattiske over the application area did not record any species of Threatened Flora (Mattiske, 2014).

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

Methodology Mattiske (2014)
GIS Database:
- Threatened and Priority Flora

(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 within the application area (GIS Database).

The flora and vegetation survey conducted by Mattiske over the application area did not record any Threatened Ecological Communities (Mattiske, 2014).

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

Methodology Mattiske (2014)
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 falls within the Coolgardie Interim Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 98% of the Pre-European vegetation remains (see table) (GIS Database; Government of Western Australia, 2013).

The vegetation of the application area has been mapped as the following Beard vegetation association (GIS Database):

468: Medium woodland, salmon gum and goldfields blackbutt.

Approximately 99% of Beard vegetation association 468 remains at both the state and bioregional level (Government of Western Australia, 2013). Therefore, the area proposed to be cleared does not represent a significant remnant of native vegetation within an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DPaW Managed Lands
IBRA Bioregion - Coolgardie	12,912,204	12,648,491	~98	Least Concern	16.4
Beard vegetation associations - State					
468	592,022	583,903	~99	Least Concern	23.1
Beard vegetation associations - Bioregion					
468	592,022	583,903	~99	Least Concern	23.1

* Government of Western Australia (2013)

** Department of Natural Resources and Environment (2002)

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

Methodology Department of Natural Resources and Environment (2002)
Government of Western Australia (2013)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- 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 likely to be at variance to this Principle

There are no permanent water bodies or watercourses within or in close proximity to the application area (GIS Database).

No vegetation associated with a permanent watercourse or wetland was recorded within the application area during the flora and vegetation field survey (Mattiske, 2014).

There are five minor non-perennial drainage lines that intersect the application area (GIS Database). The surface flows of these drainage lines are likely to be dry most of the year therefore it is not expected the proposed clearing will have a detrimental effect on native vegetation growing in, or in association with a watercourse or wetland (Mattiske, 2014; GIS Database).

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

Methodology Mattiske (2014)
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 may be at variance to this Principle

Land system information available from nearby areas indicates that the broader area has varying susceptibility to erosion, particularly within alluvial plains where perennial shrub cover has been substantially reduced or the soil surface has been disturbed (Mattiske, 2014). Any clearing of native vegetation within the application area

has the potential to cause soil erosion (Mattiske, 2014). However, potential land degradation is likely to be minimised and managed through mitigation measures including revegetation of temporarily disturbed areas.

The soil type within the application area is described as calcareous loamy earths, yellow sandy and loamy earths, red loamy earths, red deep sands and salt lake soils (Mattiske, 2014; GIS Database).

Potential impacts from erosion as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

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

Methodology Mattiske (2014)
GIS Database:
- Pre-European Vegetation
- Rangeland Land System Mapping
- Soils, Statewide

(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 does not lie within any conservation areas (GIS Database).

The nearest nature conservation area is Kurrawang Nature Reserve, located approximately 26 kilometres west of the application area (GIS Database). Given the distance between the application area and the Nature Reserve, the proposed clearing is not likely to impact the environmental values of this conservation area.

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

The application area is not located within a Public Drinking Water Source Area (PDWSA) and there are no permanent water bodies or watercourses within the application area (GIS Database).

There are five minor non-perennial drainage lines that intersect the application area (GIS Database). The surface flows of these drainage lines are likely to be dry most of the year therefore, it is not expected the proposed clearing will have a detrimental effect on the surface water quality of these drainage lines (Mattiske, 2014; GIS Database).

Groundwater salinity within the application area is between 14,000 and 35,000 milligrams/Litre Total Dissolved Solids (TDS) which is considered to be saline (GIS Database). The proposed clearing is not likely to cause ground water quality 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 Mattiske (2014)
GIS Database:
- Groundwater Salinity, Statewide
- Hydrography, linear
- 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 climate of the Goldfields region is mostly hot and dry, with highly variable rainfall throughout the year (BoM, 2014). Kalgoorlie has a semi-arid climate with hot summers and mild winters, and an average rainfall of 267 mm relatively evenly distributed throughout the year. Rainfall can however be highly erratic year to year (BoM, 2014).

There are no permanent water bodies or watercourses within or in close proximity to the application area (GIS Database).

The application area is characterised by predominantly flat to gently undulating plains therefore given the

likelihood of little surface flow, the proposed clearing within the application area is unlikely to cause or exacerbate the incidence of flooding or localised waterlogging (Mattiske, 2014; GIS Database).

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

Methodology BoM (2014)
Mattiske (2014)
GIS Database:
- Hydrography, linear
- Hydrographic, catchments

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

Comments

There are two Native Title Claims (WC2013/009 and WC2014/002) over the application area (GIS Database). These claims have been filed at the federal court on behalf of the claimant groups. 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 is one registered Aboriginal Site 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 Regulation, the Department of Water, and the Department of Parks and Wildlife, 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 12 January 2015 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received in relation to the application.

Methodology GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims, Determined by the Federal Court
- Native Title Claims, Filed at the Federal Court
- Native Title Claims, Registered with the NNTT

4. References

- BoM (2014). Bureau of Meteorology (WWW Document). Retrieved from <http://www.bom.gov.au>
- 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.
- Government of Western Australia (2013) 2012 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2012. WA Department of Environment and Conservation, Perth.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Kendrick, P., and Stanley F. (2003) Pilbara 4 (PIL4 - Roebourne synopsis). A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Department of Conservation and Land Management, Western Australia.
- Mattiske (2014) Flora and Vegetation Values on the Boorara Project Area Including a Desktop Fauna Assessment. Report prepared by Mattiske Consulting Pty Ltd for MacPhersons Resources Ltd, Western Australia.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia (now DPaW and DER)
DER	Department of Environment Regulation, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DRF	Declared Rare Flora
DotE	Department of the Environment, Australian Government
DoW	Department of Water, Western Australia
DPaW	Department of Parks and Wildlife, Western Australia
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DotE)
EPA	Environmental Protection Authority, Western Australia
EP Act	<i>Environmental Protection Act 1986</i> , Western Australia
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (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
PEC	Priority Ecological Community, Western Australia
RIWI Act	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
s.17	Section 17 of the <i>Environment Protection Act 1986</i> , Western Australia
TEC	Threatened Ecological Community

Definitions:

{DPaW (2013) Conservation Codes for Western Australian Flora and Fauna. Department of Parks and Wildlife, Western Australia}:-

- T** **Threatened species:**
 Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna or the Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).
 Threatened Fauna and Flora are further recognised by DPaW according to their level of threat using IUCN Red List criteria. For example Carnaby's Cockatoo *Calyptorhynchus latirostris* is specially protected under the *Wildlife Conservation Act 1950* as a threatened species with a ranking of Endangered.
Rankings:
 CR: Critically Endangered - considered to be facing an extremely high risk of extinction in the wild.
 EN: Endangered - considered to be facing a very high risk of extinction in the wild.
 VU: Vulnerable - considered to be facing a high risk of extinction in the wild.
- X** **Presumed Extinct species:**
 Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora (which may also be referred to as Declared Rare Flora).
- IA** **Migratory birds protected under an international agreement:**
 Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice.
 Birds that are subject to an agreement between governments of Australia and Japan, China and The Republic of Korea relating to the protection of migratory birds and birds in danger of extinction.
- S** **Other specially protected fauna:**
 Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice.
- P1** **Priority One - Poorly-known species:**
 Species that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, rail reserves and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.
- P2** **Priority Two - Poorly-known species:**
 Species that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, unallocated Crown land, water reserves, etc. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.
- P3** **Priority Three - Poorly-known species:**
 Species that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.
- P4** **Priority Four - Rare, Near Threatened and other species in need of monitoring:**
 Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.
 Near Threatened. Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.
 Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.
- P5** **Priority Five - Conservation Dependent species:**
 Species that are not threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.