



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 6217/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Cassini Resources Limited

1.3. Property details

Property: Exploration Licence 69/2201
Local Government Area: Shire of Ngaanyatjaraku
Colloquial name: West Musgraves Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 25 September 2014

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. One Beard vegetation association is located within the application area (GIS Database):

Beard vegetation association 19: Low woodland; mulga between sand ridges.

A level 1 flora and vegetation survey conducted by Western Botanical (2007) during 16 to 24 May 2007 identified 13 vegetation communities within the application area:

WABS – Wanderrie Bank Mulga Shrubland – Scattered Mulga over perennial Wanderrie grasses including *Eragrostis eriopoda*;

HPMS – Hardpan Mulga Shrubland – Hardpan plains with Mulga, perennial shrubs and annual grasses and herbs;

CPX – Discrete, small, calcrete rises within WABS, SASP or SAMS habitat units – *Petalostylis cassioides* shrubs and scattered Spinifex on a stony mantle;

SASP – C – Sandplain Spinifex Hummock Grasslands with underlying calcrete – Extensive sand sheets supporting *Acacia ligulata*, *Acacia* species and Spinifex with calcrete outcropping and subcropping;

SDAGS – Sand Dune Acacia / Grevillea Shrubland – Low to moderate Aeolian red sand dunes supporting shrublands of *Grevillea stenobotrya*, *Acacia ligulata* and *Gyrostemon ramulosus* with minor occurrences of Spinifex;

SDAGS + Myrtaceae – *Aluta maisonneuvei* shrubland – Footslopes of moderate dunes supporting thickets of *Aluta maisonneuvei*;

SAEC – Sandplain Acacia / Eucalypt Calcrete Shrubland – Extensive level to gently undulating sandplains supporting mallee, *Acacia* and Spinifex;

MTS – *Melaleuca* / *Acacia* / *Triodia* Shrubland on stony calcrete plain – *Melaleuca glomerata* shrubland on stony calcrete plains with *Acacia ligulata* and Spinifex;

SAMS – Sandplain Mallee Spinifex – Spinifex hummock grasslands with emergent mallees;

SAWS – Sandplain Spinifex and Acacia (other than Mulga) – Extensive sand sheets supporting *Acacia* shrublands (other than *Acacia aneura*) and Spinifex hummock grasslands;

SAMU – Sandplain Mulga Spinifex – Sandplains supporting Mulga and Spinifex hummock grasslands;

GRMU – Mulga Groves – Internally drained resources gaining sites supporting dense stands of Mulga and associated Sclerophyll shrubs; and

CPN – Clay pan, vegetated – Internally drained clay plans with perennial grasses and annual herbs and grasses.

Clearing Description	West Musgrave Project. Cassini Resources Limited proposes to clear up to 30 hectares of native vegetation within a total boundary of approximately 9,410 hectares, for the purpose of mineral exploration. The project is located approximately 605 kilometres north-east of Laverton, in the Shire of Ngaanyatjarraku.
Vegetation Condition	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994); To: Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).
Comment	The proposed clearing of native vegetation is for the purposes of constructing drill pads and associated access tracks, and it is estimated approximately 180 holes will be drilled under this project.

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments	<p>Proposal is not likely to be at variance to this Principle</p> <p>The application area occurs within the Mann-Musgrave Block subregion of the Central Ranges Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is characterised by sandplains supporting low open woodlands of either Desert Oak or Mulga over <i>Triodia basedowii</i> hummock grasslands. Low open woodlands of Ironwood (<i>Acacia estrophiolata</i>) and Corkwoods (<i>Hakea</i> spp.) over tussock and hummock grasses often fringe ranges. The ranges support mixed wattle scrub or <i>Callitris glaucophylla</i> woodlands over hummock and tussock grasslands (Graham and Cowan, 2001).</p> <p>Graham and Cowan (2001) assessed the biodiversity of the Mann-Musgrave Block IBRA subregion, finding that the subregion is rich and diverse in both its flora and fauna. However, most species are wide ranging and usually occur in at least one, and often several adjoining subregions (Graham and Cowan, 2001).</p> <p>There have been several flora and vegetation surveys within the surrounding areas since 2001, two of which are relevant to the application area (Cassini, 2014). Based on a flora and vegetation survey by Coffey (2009), a total of 186 native flora species have been recorded within the application area. The vegetation recorded within the application area is considered regionally well represented (Coffey, 2009; Western Botanical, 2007).</p> <p>No Threatened or Priority Ecological Communities, or Threatened or Priority flora have been recorded within the application area (Cassini, 2014; DPaW, 2014, Coffey, 2009).</p> <p>Coffey (2009) identified two weed species during the flora and vegetation survey. Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area. Potential impacts to the biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.</p> <p>Based on the above, the proposed clearing is not likely to be at variance to this Principle.</p>
Methodology	<p>Cassini (2014) Coffey (2009) DPaW (2014) Graham and Cowan (2001) GIS Database: - Cooper 1.25m Orthomosaic - Landgate 2002 - IBRA WA (Regions - Subregions) - Pre-European vegetation - Threatened Ecological Sites Buffered</p>

(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	<p>Proposal is not likely to be at variance to this Principle</p> <p>The vegetation types, landforms and habitat types within the application area are common and widespread in the region (Coffey, 2009).</p> <p>There are no records of fauna of conservation significance occurring within the area applied to clear (GIS Database; DPaW, 2014).</p> <p>Cassini (2014) state that drill holes and pads will not be located within dune systems wherever possible and practicable.</p> <p>Based on the above, the proposed clearing is not likely to be at variance to this Principle.</p>
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Methodology Cassini (2014)
Coffey (2009)
DPaW (2014)
GIS Database:
- Cooper 1.25m Orthomosaic - Landgate 2002
- Threatened Fauna

(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 the available databases, there are no known records of Threatened Flora within the application area (GIS Database). A search of the Department of Parks and Wildlife's Threatened and Priority Flora databases identified no Threatened Flora species as occurring within a 10 kilometre radius of the application area (DPaW, 2014).

Flora surveys conducted over the application area and surrounding areas did not record any species of rare flora (Cassini, 2014).

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

Methodology Cassini (2014)
DPaW (2014)
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

A search of the available databases showed that there are no known Threatened Ecological Communities situated within 200 kilometres of the application area (GIS Database).

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 falls within the Central Ranges IBRA bioregion (GIS Database). The vegetation within the application area is recorded as:

Beard vegetation association 19: Low woodland; mulga between sand ridges (GIS Database).

According to the Government of Western Australia (2013), Beard vegetation association 19 retains approximately 99% of its pre-European extent. The local area has been extensively cleared, however the area proposed to be cleared is not a significant remnant of native vegetation.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Central Ranges	4,703,100	4,697,248	~99.88	Least Concern	-
Beard vegetation associations - State					
19	4,385,295	4,384,250	~99.98	Least Concern	0.11
Beard vegetation associations - Bioregion					
19	902,980	902,371	~99.93	Least Concern	-

* Government of Western Australia (2013)

** Department of Natural Resources and Environment (2002)

Methodology Based on the above, the proposed clearing is not at variance to this Principle.
Department of Natural Resources and Environment (2002)
Government of Western Australia (2013)
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 databases, there are no watercourses or wetlands within the application area (GIS Database). The vegetation within the application area is not considered to be growing in association with any watercourse or wetland.

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

Methodology GIS Database:
- Geodata, Lakes
- 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 Central Ranges bioregion is widely affected by the grazing of feral camel herds, with the camel population increasing exponentially each year (Ward, 2007).

Cassini (2014) propose to clear 30 hectares of native vegetation, distributed over a large application area of approximately 9,410 hectares. Disturbance will be for access tracks and drill pads using machinery with the blade up to ensure soil is not removed, which is not likely to result in large areas of disturbed or open land. Given the nature and scale of the proposed activities, the clearing is not likely to result in appreciable land degradation.

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

Methodology Cassini (2014)
Ward (2007)

(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 within the 'Ranges of the Western Desert', an area which is listed on the Register of National Estate for its unique natural values (GIS Database). The ranges of the Western Desert covers an area of approximately 8 million hectares. The small area of the proposed clearing (30 hectares) is unlikely to have any significant impact on the natural values of this area.

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

Methodology GIS Database:
- Register of National Estate

(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 within a Public Drinking Water Source Area (GIS Database).

Groundwater within the application area is fresh to brackish, at between 1,000 - 3,000 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database). The proposed clearing, is unlikely to have any significant impact on groundwater levels or quality.

The proposed clearing area is relatively flat, and is not associated with any permanent watercourses or waterbodies (GIS Database). The proposed clearing of approximately 30 hectares of native vegetation for mineral exploitation, is unlikely to cause any deterioration in surface water quality.

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

- Methodology** 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 application area falls within the Warburton Basin catchment area, which covers a total area of approximately 17,195,989 hectares (GIS Database).

The mean annual rainfall for the area is approximately 300 millimetres per year, while the evaporation of the area is at around 3,400 millimetres per year (GIS Database). Localised flooding may occur following heavy rainfall events. However, the proposed clearing of approximately 30 hectares within a total application area of approximately 9,410 hectares, is unlikely to increase the incidence or intensity of natural flooding events.

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

- Methodology** GIS Database:
- Evaporation Isopleths
 - Hydrographic Catchments - Catchments
 - Rainfall, Mean Annual

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

Comments

There is one native title claim over the area under application (GIS Database). This claim (WC2004/003) was determined by the Federal Court on 29 June 2005 (GIS Database). However, 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 (Site ID: 2888) (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 Parks and Wildlife, 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 25 August 2014 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received in relation to this 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

- Cassini Resources Limited (Cassini) (2014) CPS 6217/1 Clearing permit application. Cassini Resources, Perth, Western Australia.
- Coffey Environments (Coffey) (2009) Flora and Vegetation Assessment - West Musgraves Project Area, Great Victorian and Gibson Deserts. Internal Report prepared for BHP Billiton Minerals Exploration, September 2009.
- 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.
- Department of Parks and Wildlife (DPaW) (2014) NatureMap Department of Parks and Wildlife, viewed 15 September 2014 <<http://naturemap.dec.wa.gov.au>>.
- 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.
- Graham, D. and Cowan, M (2001) Central Ranges 1 (CR1 - Mann-Musgrave Block subregion), in A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002, Western Australia.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Ward, B (2007) Feral Camel Distribution and Abundance of the Warburton Central Ranges and Northern Great Victoria Desert. Draft report Department of Environment and Conservation Perth WA.

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.