



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4149/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Hamersley Iron Pty Ltd

1.3. Property details

Property: Iron Ore (Rhodes Ridge) Agreement Authorisation Act 1972
Temporary Reserve 70/4193 (TR70/4193)
Local Government Area: Shire of East Pilbara
Colloquial name: Giles Point

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 10 February 2011

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 Vegetation Associations have been mapped at a 250,000 scale for the whole of Western Australia. One Beard Vegetation Association has been mapped within the application area (Shepherd 2009; GIS Database):	Hamersley Iron Pty Ltd has applied to clear up to 2.1 hectares of native vegetation within a total application area of approximately 25 hectares (Hamersley Iron Pty Ltd, 2011). The proposal area is situated approximately 54 kilometres north-west of the township of Newman (Rio Tinto Iron Ore, 2010).	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).	The vegetation descriptions were derived from descriptions by Rio Tinto Iron Ore (2010). The vegetation condition was described using a scale based on Trudgen (1988) and has been converted to the corresponding condition from the Keighery (1994) scale.
82: Hummock grasslands, low tree steppe; snappy gum over <i>Triodia wiseana</i> .		To	
A flora and vegetation survey of the proposed 'Giles Point' application area was undertaken by Rio Tinto on 22 and 24 May 2010 (Rio Tinto Iron Ore, 2010).	The clearing is required for exploration access tracks.	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).	Approximately 70% of the application area has been affected by fire in the last three years (Rio Tinto Iron Ore, 2010).
A total of 9 vegetation communities have been identified within the application area (Rio Tinto, 2010). These are:			No introduced weed species were recorded within the application area (Rio Tinto Iron Ore, 2010).
Vegetation from the flats			
1. F1 <i>Corymbia hamersleyana</i> , <i>Eucalyptus gamophylla</i> low woodland over <i>Acacia trudgeniana</i> high open shrubland over <i>Rulingia luteiflora</i> , <i>Gastrolobium grandiflorum</i> open shrubland over <i>Keraudrenia velutina</i> low shrubland over <i>Triodia melvillei</i> , <i>Triodia basedowii</i> very open hummock grassland over <i>Paraneurachne muelleri</i> , <i>Themeda triandra</i> tussock grassland;			
2. F2 <i>Eucalyptus leucophloia</i> , <i>Eucalyptus kingsmillii</i> , <i>Corymbia deserticola</i> low open forest over <i>Acacia adsurgens</i> , <i>Acacia pruinocarpa</i> , <i>Acacia aneura</i> high open shrubland over <i>Keraudrenia velutina</i> low			

shrubland over *Triodia melvillei*, *Triodia basedowii* hummock grassland over *Paraneurachne muelleri*, *Amphipogon caricinus* very open tussock grassland. Mixed *Acacia* shrubland / hummock grassland with emergent *Corymbia hamersleyana* on the stony footslopes of the Hamersley range;

3. F3 *Eucalyptus xerothermica*, *Eucalyptus gamophylla*, *Corymbia deserticola* low open forest over *Acacia aneura* high open shrubland over *Senna pleurocarpa* low open shrubland over *Triodia melvillei* very open hummock grassland over *Chrysopogon fallax*, *Paraneurachne muelleri* tussock grassland;

4. F4 *Acacia aneura* low woodland over *Rulingia luteiflora* shrubland over *Ptilotus obovatus*, *Eremophila forrestii* low open heath over *Chrysopogon fallax*, *Aristida latifolia*, *Digitaria brownii* tussock grassland over *Aristida contorta* very open bunch grass;

5. F5 *Acacia aneura*, *Corymbia deserticola* low open forest over *Acacia pachyacra* high open shrubland over *Rhagodia sp.* Hamersley, *Senna sp.* Meekatharra open shrubland over *Themeda triandra*, *Chrysopogon fallax* tussock grassland;

Slight Slope Vegetation

6. SS1 *Eucalyptus leucophloia*, *Eucalyptus gamophylla* low open forest over *Acacia bivenosa* open shrubland over *Ptilotus rotundifolius* low open shrubland over *Triodia basedowii*, *Triodia melvillei* hummock grassland over *Cymbopogon ambiguus* scattered tussock grass;

7. SS2 *Corymbia hamersleyana*, *Eucalyptus leucophloia*, *Hakea lorea* low woodland over *Rulingia luteiflora*, *Acacia bivenosa* open shrubland over *Keraudrenia velutina* low open shrubland over *Triodia basedowii* hummock grassland;

8. SS3 *Eucalyptus gamophylla*, *Eucalyptus kingsmillii*, *Corymbia deserticola* low open forest over *Acacia adsurgens* x *rhodophloia*, *Acacia ancistrocarpa* high shrubland over *Keraudrenia velutina* low open shrubland over *Triodia basedowii* hummock grassland; and

Minor Flowline Vegetation

9. MF1 *Corymbia hamersleyana*, *Hakea lorea*, *Eucalyptus gamophylla* low woodland over *Rulingia luteiflora*, *Gossypium robinsonii* open scrub over *Corchorus lasiophyllum* low open shrubland over *Triodia basedowii* very open hummock grassland over *Eriachne tenuiculmis*, *Cymbopogon ambiguus*, *Themeda triandra* open tussock grassland.

3. Assessment of application against clearing principles

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

Comments

Proposal is not likely to be at variance to this Principle

The application area is located within the Hamersley subregion of the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). This subregion is characterised by sedimentary ranges and plateaux, dissected by gorges (basalt, shale and dolerite), with Mulga low woodland over bunch grasses on fine textured soils in valley floors, and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils of the ranges (Kendrick, 2001).

The vegetation of the application area is broadly mapped as; Beard Vegetation Association 82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*. The application area lies approximately 61 kilometres east of Karijini National Park and approximately 72 kilometres south-west of the Fortescue Marsh, an important wetland system in the Pilbara region (GIS Database).

The application area falls within an area identified by the Department of Environment and Conservation as potentially having conservation significance for Mulga vegetation (Rio Tinto Iron Ore, 2010). Mulga communities are repositories of significant productivity and biodiversity, they are resource hotspots because of their ability to capture, retain and cycle precious sediments, nutrients and water. Therefore, the effective management of Mulga is critically important for sustainable land use planning and natural resource management, particularly in areas where land use interests (such as pastoral and mining) may compete with biodiversity interests (Department of Environment and Conservation, 2009).

Botanists from Rio Tinto Iron Ore carried out a flora and vegetation survey over the application area on 22 and 24 May 2010 (Rio Tinto Iron Ore, 2010). Nine vegetation communities were identified within the application area and these comprised of a total of 131 native flora species, including 27 families representing 61 genera (Rio Tinto Iron Ore, 2010). While Rio Tinto Iron Ore (2010) note that the survey was undertaken at a relatively dry time of the year, the number of species identified within the application area is within the expected range for the area surveyed and the locality. Vegetation types identified within the application area are considered widely distributed and relatively well represented in this section of the Pilbara region (Rio Tinto Iron Ore, 2010), therefore the application area is unlikely to have greater diversity than similar areas within the region (Rio Tinto Iron Ore, 2010).

No Declared Rare Flora or Threatened Ecological Communities have been recorded within the application area (GIS Database; Rio Tinto Iron Ore, 2010). One priority species *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3) was recorded at three locations within application area (Rio Tinto Iron Ore, 2010). This species is not uncommon in Snake wood (*Acacia Xiphophylla*) and Mulga (*Acacia aneura*) vegetation in the Hamersley subregion and its priority status is likely to be a result of poor historic collections rather than inherent rarity or susceptibility to threatening processes such as clearing (Rio Tinto Iron Ore, 2010). Rio Tinto Iron Ore (2010) also note that application area provides suitable habitat for the Priority species *Goodenia nuda*, *Goodenia* sp. East Pilbara, *Isotropis parviflora*, *Rhagodia* sp. Hamersley (M. Trudgen 17794), *Brachyscome* sp. Wanna Munna Flats, *Brunonia* sp. Long hairs, *Aristida lazaridis*, *Aristida jerichoensis* var. *subspinulifera* and *Themeda* sp. Hamersley Station (ME Trudgen 11431), however, these species may have been overlooked due to their short-lived, annual growth, or their un-identifiable state due to the dry conditions at the time of the survey.

No introduced flora species were identified within the application area and the vegetation condition is considered to range from 'very good' to 'excellent' (Rio Tinto Iron Ore, 2010). Care must be taken to ensure that the proposed clearing activities do not introduce or spread any weed species to non infested areas. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed control condition.

A review of databases by Rio Tinto Iron Ore (2010) identified thirteen conservation significant fauna species as potentially occurring within the application area. Due to a lack of significant fauna habitat features and the fauna habitats being identified as common and widespread, the relatively small scale of the proposed clearing (2.1 hectares) is unlikely to be impact upon on conservation of these species at the regional level (Rio Tinto Iron Ore, 2010).

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

Methodology Department of Environment and Conservation (2009)
Kendrick (2001)
Rio Tinto Iron Ore (2010)
GIS Database:
- Declared Rare and Priority Flora List
- Ramsar Wetlands

(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 database search for fauna that may occur within a 20 kilometre radius of the application area was undertaken by Rio Tinto Iron Ore (2010) from the following databases:

- Department of Environment and Conservation (Threatened Fauna Database);
- Department of Sustainability, Environment, Water, Population, and Communities (Protected Matters Search Tool);
- Western Australian Museum (online fauna database); and
- Rio Tinto Iron Ore.
The results of the search found that 13 conservation significant species have the potential to occur or utilise the

application area:

- Cattle Egret (*Ardea ibis*), Migratory *Environmental Protection and Biodiversity Conservation (EPBC) Act 1999*;
- Fork-tailed Swift (*Apus pacificus*), Migratory *EPBC Act 1999*;
- Great Egret (*Ardea alba*), Migratory *EPBC Act 1999*;
- Oriental Plover (*Charadrius veredus*), Migratory *EPBC Act 1999*;
- Rainbow Bee-eater (*Merops ornatus*), Migratory *EPBC Act 1999*;
- Night Parrot (*Pezoporus occidentalis*), *Schedule 1 Wildlife Conservation Act 1950*;
- Northern Quoll (*Dasyurus hallucatus*), *Schedule 1 Wildlife Conservation Act 1950*;
- Pilbara Orange Leaf-nosed Bat (*Rhinonictis aurantius*), *Schedule 1 Wildlife Conservation Act 1950*;
- Pilbara Olive Python (*Liasis olivaceus barroni*), *Schedule 1 Wildlife Conservation Act 1950*;
- *Ramphotyphlops ganei*, DEC Priority 1;
- Australian Bustard (*Ardeotis australis*), DEC Priority 4;
- Ghost Bat (*Macroderma gigas*) DEC Priority 4; and
- Western Pebble-mound Mouse (*Pseudomys chapmani*) DEC Priority 4.

Rio Tinto Iron Ore (2010) has identified three primary habitats within the application area: flats dominated by *Acacia spp.* and Eucalypts; lower foot slopes dominated by Eucalypts over Spinifex (*Triodia spp.*); and minor flowlines.

These habitat types are considered both common and widespread in the Pilbara bioregion (Rio Tinto Iron Ore, 2010).

For a number of conservation significant species the application area may form part of a larger home range or be subject to only seasonal visits (Rio Tinto Iron Ore, 2010). It is likely that several mobile species will be able to readily move quickly from the area upon clearing to adjacent vegetated areas.

The Western Pebble-mound Mouse (DEC Priority 4) is found in areas of rocky, hummock grassland with little or no soil and an overstorey of *Acacia* (Morris and Burbidge, 2008). Mounds of the Western Pebble-mound Mouse were identified within the application area during the flora and vegetation survey undertaken on 22 and 24 May 2010. The proposed clearing may impact on the Western Pebble-mound Mouse within the application area, however, the clearing is unlikely to impact on the conservation of this species given it is relatively widespread and abundant throughout much of the Pilbara region (Kendrick, 2001), and that this is a relatively small scale clearing application (2.1 hectares).

The vegetation and habitats present are unlikely to represent significant habitat for most of the above conservation significant species in the regional context (Rio Tinto Iron Ore, 2010). No other significant fauna habitats such as caves, waterholes, significant creek lines, wetlands, or gorges were observed within the application area during the flora and vegetation survey (Rio Tinto Iron Ore, 2010).

A review of aerial imagery for the application and surrounding area was conducted by the assessor, and the vegetation is considered unlikely to function as a significant habitat corridor for fauna movement (GIS Database).

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

Methodology Kendrick (2001)
Morris and Burbidge (2008)
Rio Tinto Iron Ore (2010)
GIS Database
- *Ophthalmia* 50cm Orthomosaic - Landgate 2004

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

Comments **Proposal is not likely to be at variance to this Principle**
According to available databases, there are no recorded Declared Rare Flora (DRF) within the application area (GIS Database).

Rio Tinto Iron Ore (2010) conducted a flora and vegetation survey over the application area on 22 and 24 May 2010. No DRF pursuant to the *Wildlife Conservation (Rare Flora) Notice 2008* was identified in the application area (Rio Tinto Iron Ore, 2010).

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

Methodology Rio Tinto Iron Ore (2010)
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 Threatened Ecological Communities (TEC's) within the application area (Rio Tinto Iron Ore, 2010; GIS Database). The nearest known TEC, the 'Ethel Gorge aquifer stygobiont community' is located approximately 65 kilometres east of the application area (Rio Tinto Iron Ore, 2010). Given the distance between the application area and the nearest known TEC, the proposed clearing is not likely to impact on the conservation values of that TEC.

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

Methodology Rio Tinto Iron Ore (2010)
GIS Database:
- Clearing Regulations - Environmentally Sensitive Areas
- 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 Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). Shepherd (2009) report that approximately 98.89% of the pre-European vegetation still exists in the Pilbara Bioregion. The vegetation in the application area is broadly mapped as Beard Vegetation Association 82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana* (GIS Database).

According to Shepherd (2009) approximately 100% of Beard Vegetation Association 82 remains at the state level and 100% at the bioregional level (Shepherd, 2009). Therefore, the area proposed to be cleared does not represent a significant remnant of native vegetation within an area that has been extensively cleared.

While a small percentage of the vegetation types within the Pilbara bioregion are adequately protected within conservation reserves, the bioregion remains largely uncleared. As a result, the conservation of Beard Vegetation Association 82 within the bioregion is not likely to be impacted by this proposal.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,193	17,785,000	~99.89%	Least Concern	~6.32
Beard veg assoc. – State					
82	2,565,901	2,565,901	~100	Least Concern	~10.24
Beard veg assoc. – Bioregion					
82	2,563,583	2,563,583	~100	Least Concern	~10.24

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 Australia
- 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 at variance to this Principle

There are no permanent swamps, wetlands or major watercourses within or in close proximity to the application area (Rio Tinto, 2010). Several ephemeral creek systems and flow lines traverse the application area (GIS Database) and are responsible for quickly dispersing floodwaters after significant rainfall events.

A flora and vegetation survey of the proposed 'Giles Point' application area was undertaken on 22 and 24 May 2010 (Rio Tinto Iron Ore, 2010). This identified one vegetation community growing in association with an ephemeral drainage line: MF1 *Corymbia hamersleyana*, *Hakea lorea*, *Eucalyptus gamophylla* low woodland over *Rulingia luteiflora*, *Gossypium robinsonii* open scrub over *Corchorus lasiophyllum* low open shrubland over

Triodia basedowii very open hummock grassland over *Eriachne tenuiculmis*, *Cymbopogon ambiguus*, *Themeda triandra* open tussock grassland.

Given this vegetation type to be cleared is growing in association with an ephemeral drainage line, part of the vegetation under application is considered to be growing in an environment associated with a watercourse, however these ephemeral drainage lines are considered common and widespread in the Pilbara bioregion (Rio Tinto Iron Ore, 2010). The clearing of 2.1 hectares of native vegetation is unlikely to have a significant environmental impact in a regional context.

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

Methodology Rio Tinto Iron Ore (2010)
GIS Database:
- Hydrography, linear_1

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

Comments **Proposal is not likely to be at variance to this Principle**
The application area is within the Boolgeeda Land System (GIS Database) which consists of stony lower slopes and plains below hill systems supporting hard and soft spinifex grassland and mulga shrublands (Van Vreeswyk et al., 2004; GIS Database).

According to Van Vreeswyk et al., (2004) this land system has high resistance to soil erosion due to the stony surface materials and red loamy earths present within the soils. Approximately 100% of the land system is not affected by soil erosion (Van Vreeswyk et al., 2004). Disturbance within the application area has been relatively limited to fire activity within the last three years (Rio Tinto Iron Ore, 2010).

The application area has an annual average evaporation rate of approximately eight times the annual average rainfall (GIS Database). Based on this information, surface flow during normal rainfall events are likely to be shortlived and recharge to groundwater would be considered minimal. This would reduce the likelihood of salinity increasing as a result of the proposed clearing.

No permanent watercourses, drainage systems or wetlands are located within the application area (Rio Tinto Iron Ore, 2010; GIS Database). Local flooding occurs seasonally in the Pilbara region as a result of cyclonic activity and sporadic thunderstorm activity (Rio Tinto Iron Ore, 2010). Natural minor drainage channels that occur within the application area (Rio Tinto Iron Ore, 2010; GIS Database) tend to have high levels of sedimentation and turbidity after significant rainfall events (Van Vreeswyk et al., 2004). Given the small scale of the proposal (2.1 hectares), it is not likely the clearing will exacerbate land degradation issues more than would be expected during normal and higher rainfall events.

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

Methodology Rio Tinto Iron Ore (2010)
Van Vreeswyk et al., (2004)
GIS Database:
- Evaporation Isopleths
- Rainfall, Mean Annual Rainfall
- 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 application area is not situated within a Department of Environment and Conservation managed conservation area (GIS Database). The nearest conservation estate is the Karijini National Park which is located approximately 61 kilometres east of the application area (Rio Tinto Iron Ore, 2010). Given the distance between the application area and the nearest conservation area, the proposed clearing is not likely to impact on the conservation values of the Karijini National Park.

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

Methodology Rio Tinto Iron Ore (2010)
GIS Database:
- DEC Tenure (Category)

(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) (GIS Database). There are no permanent watercourses within the application area (Rio Tinto Iron Ore, 2010; GIS Database).

With an average annual rainfall of approximately 400 millimetres (GIS Database) and an average annual evaporation rate of 3400 millimetres (GIS Database) any surface water resulting from normal rainfall events is likely to evaporate quickly.

Rocky-sloping topography over much of the upper catchments of the Boolgeeda land system often produce considerable runoff (Van Vreeswyk et al., 2004) which results in ephemeral watercourses having high levels of sedimentation and turbidity after rainfall events ((Van Vreeswyk et al., 2004). Numerous 'minor non-perennial watercourses' intersect the application area (GIS Database), however proposed clearing of 2.1 hectares is unlikely to lead to significant changes in surface water quality to the surrounding uncleared areas than would otherwise be expected (Rio Tinto Iron Ore, 2010).

The groundwater salinity within the application area is between 500 - 1,000 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database). This is considered to be potable water. The proposed clearing is not likely to cause salinity levels within the local area to change.

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

Methodology Rio Tinto Iron Ore (2010)
Van Vreeswyk et al., 2004
GIS Database:
- Groundwater Salinity, Statewide
- Hydrography, linear_1
- Public Drinking Water Source Area (PDWSA's)
- Rainfall, Mean Annual Rainfall

(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

With an average annual rainfall of 400 millimetres (GIS Database) and an average annual evaporation rate of 3400 millimetres (GIS Database) any surface water resulting from normal rainfall events is likely to be relatively short lived.

Local flooding occurs seasonally in the Pilbara region as a result of cyclonic activity and sporadic thunderstorm activity (Rio Tinto Iron Ore, 2010). Numerous ephemeral watercourses are located across the landscape, and these are responsible for quickly dispersing floodwaters after significant rainfall events, thereby reducing peak flood heights (GIS database).

The application area is within the Fortescue River Upper catchment area which covers 2,971,295 hectares (GIS Database). Given the application area is surrounded by intact tracts of native vegetation (GIS Database), and the area of proposed clearing (2.1 hectares) in relation to the total catchment area, the proposed clearing is not likely to increase the incidence or intensity of flooding.

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

Methodology Rio Tinto Iron Ore (2010)
GIS Database:
- Evaporation Isopleths
- Hydrography, linear_1
- Hydrography Catchments - catchments
- Rainfall, Mean Annual Rainfall

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

Comments

There is one native title claim over the area under application: WC05/6. This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. 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 (ie. 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 sites of significance recorded as occurring partly within the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure

that no Sites of Aboriginal Significance are damaged through the clearing process.

The clearing permit application was advertised on 17 January 2011 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received in relation to the application.

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.

Methodology GIS Database:
- Aboriginal Sites of Significance
- Native Title Determined
- Native Title Federal
- Native Title NNT

4. References

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- Morris, K. and Burbidge, A. (2008). *Pseudomys chapmani*. In: IUCN 2010. IUCN Red List of Threatened Species. Version 2010.4. <www.iucnredlist.org> Accessed 17 January 2011.
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- 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.
- Trudgen, M.E. (1998) A Report on Flora and Vegetation of the Port Kennedy Area. Unpublished report prepared for Bowman Bishaw and Associates, West Perth.
- Van Vreeswyk A.M.E., Payne A.L., Leighton K.A. and Hennig P. (2004) Technical Bulletin - An inventory and condition survey of rangelands in Pilbara Region, Western Australia, No 92, Department of Agriculture, Government of Western Australia, Perth, Western Australia.

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

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.