



## 1. Application details

### 1.1. Permit application details

Permit application No.: 1757/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Metals Exploration Limited

### 1.3. Property details

Property: E69/535  
Local Government Area: Shire Of Ngaanyatjarraku  
Colloquial name: Wingellina Nickel Project

### 1.4. Application

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

## 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
<p>Beard vegetation association 19: Low woodland; Mulga between sand ridges (Shepherd et al. 2001).</p> <p>Halpern Glick Maunsell (HGM) conducted a flora survey over the lease area (E69/535) from the 5th-8th April 2002 (HGM, 2002). Broad-scale vegetation mapping of the lease area was also undertaken as part of the biological assessment of the project area.</p> <p>The vegetation communities of the survey area were divided into three main groups on the basis of geomorphology (HGM, 2002):</p> <p>A. Plains;</p> <p>B. Mid slopes and small hills;</p> <p>C. Hills, ridges and breakaways.</p> <p>Three vegetation communities were identified within the survey area:</p> <p>A1: Open Shrubland of <i>Hakea lorea</i> and <i>Senna artemisioides</i> subsp. <i>X artemisioides</i> over mixed grasses and herbs in clay on low plains;</p> <p>B1: Dense Low Woodland of <i>Eucalyptus socialis</i> subsp. <i>eucentrica</i> and <i>Acacia aneura</i> var. <i>major</i> over mixed shrubs over <i>Triodia scariosa</i> in clay on low ferricrete ridges;</p> <p>B2: Very Open Shrubland of <i>Acacia pruinocarpa</i> and <i>Acacia aneura</i> var. <i>major</i> over <i>Senna pleurocarpa</i> var. <i>pleurocarpa</i> over <i>Triodia scariosa</i> in clay on midslopes or low rocky hills;</p>	<p>The proposal is for the clearing of up to 0.312 hectares of native vegetation for exploration drilling and related infrastructure ie. sumps and tracks (Metals Exploration Ltd, 2006).</p> <p>A clearing permit for a larger part of the tenement in which the application area is situated was granted in May 2006 (CPS 1153/1), and this is an area that was omitted. The Department of Environment &amp; Conservation (DEC) have advised that the advice for that permit applies to the proposed area (DEC, pers. comm., 16 May, 2007).</p>	<p>Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)</p>	<p>The lease area has been significantly disturbed as a result of mineral exploration, mining, altered fire regimes, vehicle disturbance and other minor human activities (HGM, 2002). The continued use of vehicle tracks within the area has also encouraged the spread of weeds throughout the project area.</p> <p>Six introduced plant taxa were recorded during the survey of the study area: <i>Acetosa vesicaria</i>, <i>Cenchrus ciliaris</i>, <i>Chloris virgata</i>, <i>Eragrostis tenuifolia</i>, <i>Malvastrum americanum</i> and <i>Solanum hystrix</i> (HGM, 2002). Currently, none of these are Declared Plants pursuant to Section 37 of the <i>Agriculture and Related Resources Protection Act 1976</i>.</p>

### 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 area proposed to be cleared is largely comprised of Mulga woodland, a dominant vegetation association within the Central Ranges region (GIS Database). The clearing permit application is located within the IBRA Mann-Musgrave Block subregion of WA (GIS Database). None of the rare features, centres of endemism, wetlands of National Significance or Ecosystems at risk are located within or near the application site and therefore will not be impacted by the proposed exploration activities (Cowan, 2001).

The project area is currently on the Register of National Estate for natural values and is therefore declared to be an Environmentally Sensitive Area (ESA) in accordance with the *Environmental Protection Act 1986* (GIS Database). Currently, an exemption on clearing under item 25 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 does not apply within ESA's, hence the proposal must be assessed in accordance with the provisions of the *Environmental Protection Act 1986*.

The proposal is for the clearing of up to 0.312 hectares of native vegetation. A biological assessment of the tenement in which the project area is located (E69/535) was conducted by Halpern Glick Maunsell in early April 2002, during which a flora survey and habitat assessment for fauna of conservation significance was undertaken.

No Declared Rare or Priority flora species are known to occur within the area under application (GIS Database), and HGM (2002) advise within their report that no Declared Rare or Priority flora species, or species listed under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* were recorded from the study area. The flora and vegetation survey identified three vegetation communities occurring within the project area, however, none of these are restricted to the project area or are nationally listed as Threatened Ecological Communities under the *EPBC Act 1999*.

In terms of fauna of conservation significance, it is considered that ten Scheduled species listed under the Wildlife Conservation (Specially Protected Fauna) Notice 2005, as well as seven species listed on CALM's own priority list, may be found within the project area (HGM, 2002). None of these were recorded during the field survey between 5th-8th April 2002. Considering the limited and dispersed nature of the mineral exploration proposed, it is not likely that these species will be significantly impacted.

The tenement within which the project area lies has been significantly disturbed as a result of mineral exploration, mining, altered fire regimes and vehicle disturbance (HGM, 2002). During the course of the biological survey, it was noted that vehicle tracks and uncapped drill holes were prevalent throughout E69/535. Vehicle traffic has contributed to the spread of weeds throughout the area, and continued use of vehicle tracks has allowed for little regeneration of native species.

It is unlikely that the biodiversity at the site of this proposal would be considered outstanding, or of a higher diversity than in the Central Ranges bioregion, the Shire of Ngaanyatjaraku or the local area. The area proposed to be cleared is small and the vegetation associations present within the project area are well represented on both a local and regional scale (GIS Database).

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

##### Methodology

Cowan (2001)

HGM (2002).

GIS Databases:

- Clearing Regulations - Environmentally Sensitive Areas - DOE 30/5/05.

- Declared Rare and Priority Flora List - CALM 01/07/05.

- Pre-European Vegetation - DA 01/01.

#### (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**

In April 2002, HGM were commissioned to undertake a habitat assessment of the wider Wingellina tenement (E69/535) for fauna of conservation significance. A desktop review was undertaken to collate all available information pertaining to the fauna of the Wingellina area, central ranges, and the central deserts in general (HGM, 2002). A preliminary fauna survey of the Wingellina study area was undertaken from the 5th-8th April 2002, concurrent with the vegetation and flora survey. The survey consisted of opportunistic field observations, microhabitat searching and limited trapping. Additional information relating to fauna species previously recorded, or potentially occurring in the study area was obtained through a search of the Western Australian Museum's online database, CALM's Threatened and Priority fauna database and the Commonwealth Department of Environment and Heritage's *EPBC Act 1999* online database.

Species listed under the *EPBC Act 1999* that may potentially be found within the project area include the Night Parrot (*Pezoporus occidentalis*) and Golden Bandicoot (*Isoodon auratus*), both listed as 'Endangered' (HGM,

2002). The Princess Parrot (*Polytelis alexandrae*), Malleefowl (*Leipoa ocellata*) and Bilby (*Macrotis lagotis*) are all listed as 'Vulnerable' and are also considered to be possible inhabitants of the project area.

During the preliminary fauna survey, no species listed under the *Wildlife Conservation Act 1950* were recorded from within the survey area (HGM, 2002). A search was carried out of CALM's Threatened and Priority fauna database for species likely to occur in the project area. On the basis of this information, ten Scheduled and seven Priority fauna species were considered to potentially occur within the area under application. These include:

The Mulgara (*Dasyercus cristicauda*, - S1), The Black-footed Rock-wallaby, MacDonnell Ranges subspecies (*Petrogale lateralis* ssp. - S1), The Golden Bandicoot (*Isodon auratus auratus*, - S1), The Marsupial Mole (*Notoryctes* spp. - S1), The Lesser Stick-nest Rat (*Leporillus apicalis*, - S1), The Malleefowl (*Leipoa ocellata*, - S1), The Giant Desert Skink (*Egernia kintorei*, - S1), The Bilby (*Macrotis lagotis*, - S1), The Peregrine Falcon (*Falco peregrinus*, - S4), The Major Mitchell Cockatoo (*Cacatua leadbeateri*, - S4), The Woma (*Aspidites ramsayi*, - S4), The Long-tailed Dunnart (*Sminthopsis longicaudata*, - P4), The Central Long-eared Bat (*Nyctophilus timoriensis* central form, - P4), The Ghost Bat (*Macroderma gigas*, - P4), The Grey Falcon (*Falco hypoleucos*, - P4), The Princess Parrot (*Polytelis alexandrae*, - P4), The Australian Bustard (*Ardeotis australis*, - P4), The Striated Grasswren, sandplain subspecies (*Amytornis striatus striatus*, - P4).

Of the species mentioned above the most likely to found within the exploration tenement (E69/535) are the Giant Desert Skink (*Egernia kintorei*), Bilby (*Macrotis lagotis*), Major Mitchell Cockatoo (*Cacatua leadbeateri*), Grey Falcon (*Falco hypoleucos* - P4), The Australian Bustard (*Ardeotis australis* - P4) and the Striated Grasswren, sandplain subspecies (*Amytornis striatus striatus* - P4).

The Giant Desert Skink (*Egernia kintorei*, - S1) is a relatively large, burrowing skink found in a variety of desert habitats on sandy, clay and loam soils. This species was recorded in the Great Victoria Desert in the 1960's and has been the subject of surveys in the Central Ranges area. CALM (2006) advised that the most recent record of this species is from 1997 when it was observed approximately 270 km north-west of the project area. All indications are that although it has been recorded in the region, it does not occur in the Wingellina area (HGM, 2002).

The Bilby (*Macrotis lagotis*) is an additional species that potentially occurs in the area, although it is generally associated with alluvial surfaces, sandplains and dunes. The Bilby once inhabited arid and semi-arid regions throughout mainland Australia but is now confined to the deserts of central Australia, from the Tanami Desert west to Broome, and south to Warburton. There are no recent records from the area (HGM, 2002).

The Major Mitchell Cockatoo (*Cacatua leadbeateri*) is sporadically distributed in arid and semi-arid Australia where it occurs in sparsely wooded grasslands and shrublands, generally near water. Johnstone and Storr (1998) as cited in HGM (2002), indicate that there is a population in the Warburton and Cavenagh Ranges to the west, hence it may occur in the study area. Given that the proposed land clearing represents a very small fraction of similar habitat in the general area, it is unlikely to have any significant impact on this species.

The Grey Falcon (*Falco hypoleucos* - P4) is a nomadic species which inhabits lightly timbered riverine plains and Mulga Woodlands (HGM, 2002). Although it may occur in the project area, given that the proposed land clearing represents a very small fraction of similar habitat in the general area, it is unlikely to have any significant impact on this species.

The Australian Bustard (*Ardeotis australis* - P4) is generally uncommon, although it is more abundant in areas away from human population centres. It may occur in open or lightly wooded grasslands. Although not observed during the preliminary survey, the local people indicated that Bustards do occur in the general vicinity (HGM, 2002). Although it may occur in the project area, given that the proposed land clearing represents a very small fraction of similar habitat in the general area, it is unlikely to have any significant impact on this species.

The Striated Grasswren, sandplain subspecies (*Amytornis striatus striatus* - P4) inhabits spinifex on sandhills and rocky hillslopes. Although it was not recorded during the preliminary survey, it is thought to occur in the project area (HGM, 2002). However, given that the proposed land clearing represents a very small fraction of similar habitat in the general area, it is unlikely to have any significant impact on this species.

A small amount of vegetation is proposed to be cleared (0.312 ha) and many of the species which may occur within the project area are wide ranging and usually occur in at least one, and often several, adjoining subregions (Graham & Cowan, 2001).

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

**Methodology** CALM (2006).  
Graham & Cowan (2001).  
HGM (2002).  
Metals Exploration Ltd (2006).

**(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 CALM datasets, no Priority or Declared Rare Flora (DRF) species are known to occur within the area under application (GIS Database).

Halpern Glick Maunsell were commissioned from 5th-8th April 2002 to undertake a flora survey across the lease E69/535, within which the proposed clearing will take place. The Central Ranges experienced above-average non-seasonal precipitation in January and February 2002 (HGM, 2002), hence the timing of the survey was considered to be optimal due to the stimulated growth and flowering of many flora taxa.

Prior to the field survey, a search for Declared Rare and Priority flora species previously recorded or likely to occur within the vicinity of the project area was undertaken using the following databases: CALM's Threatened (Declared Rare) Flora database; the Western Australian Herbarium Specimen database; and CALM's Declared Rare and Priority Flora List (HGM, 2002).

The results of the database search for Declared Rare and Priority flora species indicated that 11 priority flora species have previously been recorded, or are likely to occur within the vicinity of the study area (HGM, 2002). In addition, specimens of the priority flora were examined at the Western Australian Herbarium prior to conducting the survey, and habitats where these species have previously been recorded were determined from relevant literature to enable a targeted approach to the survey.

During the flora survey, no Declared Rare or Priority flora listed under the *Wildlife Conservation Act 1950* were recorded on site (HGM, 2002). Similarly, no threatened flora listed under the *EPBC Act 1999* were recorded from the study area. Several specimens were unable to be identified at the time of the original survey due to a lack of reproductive material, however, subsequent identification of these taxon has revealed that none of these are of any conservation significance, or have the potential to be of any conservation significance following complete identification (Maunsell, 2006).

Based on the above considerations and given the relative paucity of botanical collection in the Central Ranges region, it is likely that priority flora are more widely distributed than the voucher specimens of the Western Australian Herbarium would indicate (HGM, 2002).

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

**Methodology** HGM (2002).  
Maunsell (2006).  
GIS Database:  
- Declared Rare and Priority Flora List - CALM 01/07/05.

**(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 have been no known Threatened Ecological Communities (TECs) identified within the E69/535 lease area (GIS Database). The nearest known TEC is approximately 855 km south-west of the area under application (GIS Database).

No known TECs are listed in the Central Ranges 1 - Mann-Musgrave Block IBRA subregion (Graham & Cowan, 2001), and HGM (2002) advise that none of the vegetation communities recorded in the survey area are nationally listed as TECs under the *EPBC Act 1999*.

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

**Methodology** Graham & Cowan (2001).  
HGM (2002).  
GIS Databases:  
- Threatened Ecological Community Database - CALM 12/4/05.

**(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**

Approximately 100% of the Pre-European vegetation remains in the IBRA Central Ranges Subregion within which the proposal is located. The only vegetation association found within the application site is Beard vegetation association 19. This is well represented with approximately 99.9% still remaining and it is therefore of 'least concern' for biodiversity conservation (Shepherd, 2001).

Pre-European	Current area (ha)*	Remaining extent (ha)*	Conservation %*	% in Status**	reserves/CALM-managed land*
IBRA Bioregion					
Central Ranges	5,132,641	5,132,641	~100%	Least concern	
Shire of Ngaanyatjarraku	No information available				
Beard vegetation association - 19	4,888,643	4,885,387	~99.9%	Least concern	0%

\* Shepherd et al. (2001)

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

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

**(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 several non-perennial watercourses which are located approximately 300m east and 1000m north of the application area (GIS Database).

The Wingellina project area lies in central Australia and therefore has an arid climate with variable rainfall (Bureau of Meteorology, 1983 as cited in HGM, 2002). Much of the rainfall predominantly occurs between December to March and is derived from summer storms (HGM, 2002). It is only during and after such heavy rainfall events that the ephemeral watercourses near the project area are likely to flow (Senior Exploration Geologist, Metals Exploration Limited pers. comm. 27th April 2006).

Metals Exploration Ltd have confirmed that drilling will not take place within ephemeral watercourses on exploration licence E69/535, and that all care will be taken not to disturb the native vegetation in the zones marginal to the watercourses. In addition, existing tracks and gridlines will be utilised for access across the project area (Senior Exploration Geologist, Metals Exploration Limited pers. comm. 27th April 2006).

Given the small amount of vegetation to be cleared and the operator's commitment to avoiding watercourses and utilising existing tracks, it is unlikely that any watercourses will be impacted upon through the clearing activity.

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

**Methodology** HGM (2002).  
Metals Exploration Ltd (2006).  
GIS Databases:  
- Hydrography, linear - DOE 01/02/04.  
- Lakes 250K - GA.

**(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 Wingellina Hills consist of a series of predominantly low, NW-SE trending ridges with occasional high steep hills and rocky outcrops (HGM, 2002). These hills are separated from nearby ranges to the east and south by 5-10 kilometre wide flats. The soils across the project area tend to be red clays in amongst the hills and ridges, with red sandy clays on the flats (Senior Exploration Geologist, Metals Exploration Limited pers. comm. 27th April 2006). Given the topography across the project area and the dominant soil types which exist within it, the small amount of clearing associated with this proposal is unlikely to increase the incidence of soil erosion.

During the flora survey conducted by Halpern Glick Maunsell, six introduced weeds were recorded during the survey of the study area: *Acetosa vesicaria*, *Cenchrus ciliaris*, *Chloris virgata*, *Eragrostis tenuifolia*, *Malvastrum americanum* and *Solanum hystrix* (HGM, 2002). Currently, none of these are Declared Plants pursuant to Section 37 of the *Agriculture and Related Resources Protection Act 1976*.

Metals Exploration Ltd have stated within their exploration management plan that; 'drilling rigs are washed down thoroughly prior to their entry into the lease area, and prior to their exit from the area (Senior Exploration

Geologist, Metals Exploration Limited pers. comm. 27th April 2006).

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

**Methodology** HGM (2002).  
Metals Exploration Ltd (2006).

**(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**  
HGM (2002) advise that the reservation status of the Central Ranges bioregion is 0%.

The Gibson Desert Nature Reserve, located approximately 268 km west of the area proposed to be cleared, is the nearest CALM managed conservation area to the proposal (GIS Database). It is not considered that the vegetation within the project area would provide a significant ecological linkage to this conservation area. Due to the large separating distance of the conservation area to the project site it is highly unlikely that there would be any adverse effects as a result of exploration activities.

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

**Methodology** HGM (2002).  
GIS Databases:  
- CALM Managed Lands and Water - CALM 1/07/05.

**(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 area to be cleared does not fall within a Public Drinking Water Source Area (GIS Database).

Although several minor, non-perennial watercourses exist near the project area, Metals Exploration Ltd have confirmed that all care will be taken not to disturb the native vegetation in the zones marginal to the watercourses (Senior Exploration Geologist, Metals Exploration Limited pers. comm. 27th April 2006). As a result, the clearing of vegetation will not increase sedimentation, erosion, turbidity or eutrophication of these watercourses, either on or off-site.

The groundwater table across much of the project area sits at around 50 metres below ground level, and the water is considered to be of good drinking quality (Senior Exploration Geologist, Metals Exploration Limited pers. comm. 27th April 2006). The small amount of clearing associated with this proposal will not impact on the watertable and increase salinity risk across the project area.

Furthermore, the area of native vegetation to be cleared is unlikely to have an impact on regional groundwater levels considering the magnitude of the regional Musgrave groundwater province (>32,400 sq km) and the extent of native vegetation remaining in the Central Ranges Bioregion, which is approximately 100% (Shepherd et al, 2001).

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

**Methodology** Metals Exploration Ltd (2006).  
Shepherd et al. (2001).  
GIS Databases:  
- Groundwater Provinces - WRC 98.  
- Hydrography, linear - DOE 01/02/04.  
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00.  
- Public Drinking Water Source Areas (PDWSAs) - DOE 07/02/06.

**(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 Wingellina project area lies in central Australia and has an arid climate with variable rainfall (HGM, 2007). The average annual rainfall of 250 mm predominantly occurs between December to March and is derived from summer storms (HGM, 2007). It is only during and after such heavy rainfall events that the area is prone to inundation.

Based on the above information and the fact that the scale of clearing involved will not create a catchment area large enough to increase the incidence or intensity of flooding, it is unlikely that flooding will increase due to clearing associated with the proposal.

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

**Methodology** HGM (2002).

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

##### Comments

There is one native title claim over the area under application; WC04/003. This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenements have 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 are eleven Aboriginal sites of significance (ID 2820, 2821, 2825, 2826, 2827, 2900, 2901, 2903, 2905, 2906, 2953) within the area under application. 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 proponent has consulted the Department of Indigenous Affairs (DIA) and subsequently marked out exclusion zones within tenement E69/535, these are areas which are excluded from any exploration activities. The DIA has advised the proponent that a Section 18 Permit is not required for exploration in the tenement as a result of the implementation of exclusion zones (Metals Exploration, 2006).

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 Databases:

- Aboriginal Sites of Significance - DIA 04/07/02.
- Native Title Claims - DLI 19/12/04.

#### 4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Comment / recommendation
Mineral Exploration	Mechanical Removal	0.312	<p>The clearing principles have been addressed and the proposed clearing is not likely to be at variance to any of the clearing principles. The assessing officer recommends that the clearing permit be granted, subject to the following conditions:</p> <ol style="list-style-type: none"><li>1. Any vehicle or machinery proposed to be used at the site shall be cleaned of potentially contaminated soil or plant matter prior to entering, or leaving the area cross-hatched yellow on Plan 1757/1.</li><li>2. The Permit Holder shall record the following for each instance of clearing:<ol style="list-style-type: none"><li>a) the location of where the clearing occurred, expressed as grid coordinates using the Geocentric Datum of Australia 1994 coordinate system;</li><li>b) the size of the area cleared in hectares;</li><li>c) the dates on which the area was cleared;</li><li>d) the area rehabilitated in hectares;</li><li>e) the method of clearing; and</li><li>f) the purpose of clearing.</li></ol></li><li>3. The Permit Holder shall provide a report to the Director, Environment, Department of Industry and Resources by 1 February 2008 and each subsequent year for the life of the permit, demonstrating adherence to all the conditions of this permit, and setting out the records required under condition 2 of this permit in relation to clearing carried out between 1 January and 31 December of the previous year.</li></ol>

#### 5. References

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- Cowan, S. (2001) Murchison 1 (MUR1 - East Murchison subregion) in 'A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002', Report published by the Department of Conservation and Land Management, Perth, Western Australia.
- 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.
- DoE (2006) Water allocation/licence advice. Department of Environment, Western Australia.
- Fortescue Metals Group Limited (2005) Pilbara Iron Ore Project Night Parrot (*Pezoporus occidentalis*) Management Plan. Unpublished report, Western Australia, August 2005.
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- HGM (2002) Wingellina Baseline Biological Survey. Prepared by Halpern Glick Maunsell for Acclaim Exploration NL. December 2002.
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- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Maunsell (2006) Wingellina Biological Survey Follow-up Threatened Flora Determination. Prepared by Maunsell Australia Pty Ltd for Metals Exploration Ltd. March 2006.
- Metals Exploration Ltd (2006) Application for a Clearing Permit on E69/535. Prepared by Metals Exploration Limited on behalf of Hinckley Range Pty Ltd. February 2006.
- 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.

## 6. Glossary

### Acronyms:

<b>BoM</b>	Bureau of Meteorology, Australian Government.
<b>CALM</b>	Department of Conservation and Land Management, Western Australia.
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia.
<b>DA</b>	Department of Agriculture, Western Australia.
<b>DEC</b>	Department of Environment and Conservation
<b>DEH</b>	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
<b>DEP</b>	Department of Environment Protection (now DoE), Western Australia.
<b>DIA</b>	Department of Indigenous Affairs
<b>DLI</b>	Department of Land Information, Western Australia.
<b>DoE</b>	Department of Environment, Western Australia.
<b>DoIR</b>	Department of Industry and Resources, Western Australia.
<b>DOLA</b>	Department of Land Administration, Western Australia.
<b>DoW</b>	Department of Water
<b>EP Act</b>	Environment Protection Act 1986, Western Australia.
<b>EPBC Act</b>	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
<b>GIS</b>	Geographical Information System.
<b>IBRA</b>	Interim Biogeographic Regionalisation for Australia.
<b>IUCN</b>	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
<b>RIWI</b>	Rights in Water and Irrigation Act 1914, Western Australia.
<b>s.17</b>	Section 17 of the Environment Protection Act 1986, Western Australia.
<b>TECs</b>	Threatened Ecological Communities.

### 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.