



## 1. Application details

### 1.1. Permit application details

Permit application No.: 1534/1

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 Ngaanyatjaraku

Colloquial name: Exploration Licence 69/535 - Wingellina

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
1.52		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.</p> <p>Beard vegetation association 92: Hummock grasslands, sparse tree steppe; Bloodwood over hard spinifex <i>Triodia basedowii</i>.</p> <p>(Hopkins et al. 2001; 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). Broadscale 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>Seven 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>A2: Grassland of <i>Poaceae</i> spp. with occasional <i>Senna glutinosa</i> subsp. <i>glutinosa</i> and <i>Sida fibulifera</i> in patches of cracking clay;</p> <p>A3: Dense Low Woodland of <i>Eucalyptus mannensis</i> subsp. <i>mannensis</i> over <i>Acacia</i></p>	<p>The proposal is for the clearing of up to 1.52 hectares of native vegetation across two project areas totalling 540 hectares, for the purpose of rig access and the construction of sumps for an exploration drilling program on exploration licence E69/535 (Metals Exploration Ltd, 2006a).</p> <p>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).</p> <p>GIS Database: - Clearing Regulations - Environmentally Sensitive Areas - DOE 30/5/05.</p>	<p>Pristine: No obvious signs of disturbance (Keighery 1994)</p>	<p>A clearing permit has previously been issued to Metals Exploration Ltd (CPS 1153/1) for the clearing of up to 6.25 hectares of native vegetation for exploration drilling activities and related infrastructure ie. sumps. That permit was also issued for clearing activities occurring across exploration licence E69/535, and the issues associated with CPS 1153/1 are considered to be relevant to the assessment of the current proposal.</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>

*pachyacra*, *Acacia prainii* and *Dodonaea viscosa* subsp. *angustissima* over *Triodia rigidissima* and *Triodia helmsii* in sand over clay on low plains;

B1: Dense Low Woodland of *Eucalyptus socialis* subsp. *eucentrica* and *Acacia aneura* var. *major* over mixed shrubs over *Triodia scariosa* in clay on low ferricrete ridges;

B2: Very Open Shrubland of *Acacia pruinocarpa* and *Acacia aneura* var. *major* over *Senna pleurocarpa* var. *pleurocarpa* over *Triodia scariosa* in clay on midslopes or low rocky hills;

B3: Low Scrub over *Triodia* spp. in sand on sand dune;

C1: Low Open Low Woodland of *Eucalyptus gamophylla* and *Eucalyptus socialis* subsp. *eucentrica* over *Acacia validinervia* over mixed shrubs over *Triodia scariosa* in clay loam on upper slopes of mafic ridges.

### 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**

A biological assessment of the project area 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 seven 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 the Department of Environment and Conservation's (DEC) 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.

The project area has been significantly disturbed as a result of mineral exploration, mining, altered fire regimes and vehicle disturbance (HGM, 2002). 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 Interim Biogeographic Regionalisation of Australia (IBRA) 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).

With consideration to the above, it is determined that the clearing as proposed is not likely to be at variance to this principle.

**Methodology**      HGM (2002).  
GIS Databases:  
- 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**

The fauna of the western Central Ranges area is poorly documented and fauna surveys undertaken in the region are of an opportunistic nature, with no detailed site-specific surveys in the Wingellina area or bioregion

as a whole (HGM, 2002).

In April 2002, Halpern Glick Maunsell were commissioned to undertake a habitat assessment of the Wingellina project area 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, DEC'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 (*Pezoporos 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.

The Night Parrot is rarely sighted, although a recent confirmed sighting was made from the Cloud Break area within the Fortescue Plains, some 1,000 kilometres north-west of the current area under application (Fortescue Metals Group Ltd, 2005). Although the Night Parrot may possibly be found within the project area, the likelihood is considered low due to the small size of the area proposed to be cleared, and wide representation of similar vegetation types across the greater 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. The Schedule 1 species that may occur in the area are as follows:

The Mulgara (*Dasyercus cristicauda*) occurs in arid sandy regions with hummock grasses (*Triodia* species commonly referred to as 'spinifex') from the eastern Pilbara to central Australia. It is rarely recorded but may occur in the study area in lowland plain habitats. This species has been recorded approximately 45 km south-west of Warburton (HGM, 2002). 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 Black-footed Rock-wallaby, MacDonnell Ranges subspecies (*Petrogale lateralis ssp.*) is poorly known in many remote areas. The MacDonnell Ranges subspecies of *P. lateralis* has a distribution that extends from central Australia into the western desert region. Typical habitat includes rocky cliffs and gorges with caves and crevasses used as shelter sites. In the past, this species occupied granite outcrops in the area (Pearson, 1992 as cited in HGM, 2002). Given that the majority of exploration drilling will occur on the grassy lowland areas and not the outcropping ridgetops (Metals Exploration Ltd, 2006), it is unlikely that the proposal will have any significant impact on this species.

The Golden Bandicoot (*Isoodon auratus auratus*) was last recorded near Warburton in the 1930's, though is now presumed extinct in the Central Ranges region (HGM, 2002).

The Marsupial Mole (*Notoryctes spp.*) is an inhabitant of sandy deserts and is rarely observed or recorded. Two species are currently recognised, the Southern (*N. typhlops*) and Northern (*N. caurinus*) Marsupial Mole. The distribution of these species appears to extend to the desert areas east of Warburton. There are three previous records from the general area but it is not known which species were observed. It is considered unlikely that either species of Marsupial Mole would occur within the project area as the substrate in the Wingellina Hills is not suited to these burrowing animals (HGM, 2002).

The Lesser Stick-nest Rat (*Leporillus apicalis*) is presumed to be locally extinct but the remains of old stick nests may be found in small caves and under ledges in breakaways and gorges (HGM, 2002). Given that the majority of exploration drilling will occur on the grassy lowland areas and not the outcropping ridgetops (Metals Exploration Ltd, 2006), it is unlikely that the proposal will have any significant impact on this species.

The Malleefowl (*Leipoa ocellata*) was once widely distributed across southern Australia but is now patchily distributed and has disappeared from much of its former range due to habitat loss and introduced predators. The Malleefowl is known to have previously occurred in the Wingellina area and old mounds have apparently been observed in the area. There are, however, no recent records of this species from the project area or surrounds (HGM, 2002).

The Giant Desert Skink (*Egernia kintorei*) 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. The Department of Conservation and Land Management (CALM) previously 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 (CALM, 2006). 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 Schedule 1 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 following Schedule 4 fauna species are also considered to potentially occur within the project area:

The Peregrine Falcon (*Falco peregrinus*) is uncommon and prefers areas with rocky ledges, cliffs, watercourses or open woodland (HGM, 2002). Although it may occur in the area, given that the majority of exploration drilling will occur on the grassy lowland areas and not the outcropping ridgetops (Metals Exploration Ltd, 2006), it is unlikely that the proposal will have any significant impact on this species.

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 Woma (*Aspidites ramsayi*) is a nocturnal species of python restricted to arid areas. Numbers are thought to have decreased, particularly in south Western Australia, but it is still encountered in the sandy deserts of the interior including the Tanami (HGM, 2002). 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 following Priority listed taxa may also occur within the project area:

The Long-tailed Dunnart (*Sminthopsis longicaudata* - P4) is a little known species which inhabits rugged rocky areas. It has been recorded south of Warburton and may possibly occur in the project area (HGM, 2002). However, given that the majority of exploration drilling will occur on the grassy lowland areas and not the outcropping ridgetops (Metals Exploration Ltd, 2006), it is unlikely that the proposal will have any significant impact on this species.

The Central Long-eared Bat (*Nyctophilus timoriensis* central form - P4) roosts in tree hollows and under loose bark, but little else is known about its habits (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 Ghost Bat (*Macroderma gigas* - P4) was previously recorded south-west of Warburton in 1961, however, it is now known only from the Pilbara and Kimberley in Western Australia. It shelters in caves, mine shafts and deep rock fissures and is sensitive to disturbance (HGM, 2002). However, given the lack of recent records and that the majority of exploration drilling will occur on the grassy lowland areas and not the outcropping ridgetops (Metals Exploration Ltd, 2006), it is unlikely that the proposal will 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 Princess Parrot (*Polytelis alexandrae* - P4) is a little known species of parrot which is recorded sporadically in the arid interior. It is highly nomadic and has been reported from arid shrublands, red desert sandplains and dunes, and along tree-lined watercourses in central Australia (HGM, 2002). It is rarely recorded but occurs in areas that are infrequently visited, and therefore its status is difficult to determine accurately (Blakers et al., 1984 as cited in 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 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).

With consideration to the above, it is not likely that the clearing as proposed is at variance to this principle.

**Methodology** CALM (2006).  
Fortescue Metals Group Ltd (2005).  
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 DEC 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 exploration licence 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).

It is considered that the clearing associated with this 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 are no known Threatened Ecological Communities (TECs) identified within exploration licence E69/535 (GIS Database). The nearest known TEC is approximately 853 km south-west of the area under application.

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*.

With consideration to the above, it is not likely that the clearing as proposed is 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 Proposal is not at variance to this Principle**

The area proposed to be cleared is located within the Central Ranges IBRA bioregion, of which approximately 100% of the Pre-European vegetation extent remains (Shepherd et al. 2001a).

While the benchmark of 15% representation in conservation reserves (JANIS Forests Criteria, 1997) has not been met for Beard vegetation associations 19 and 92, approximately 100% and 99.6% of the pre-European extent remains for these associations respectively within the Central Ranges IBRA region (Shepherd et al. 2001a), and the proposed clearing is therefore considered to be of 'least concern' for biodiversity conservation (Department of Natural Resources and Environment, 2002).

The area proposed to clear is small and does not represent a significant remnant of native vegetation when compared to the extent of the above Beard vegetation types remaining in the Central Ranges IBRA region. It is therefore considered that the clearing as proposed is not at variance to this principle.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% in reserves/CALM-managed land*
IBRA Bioregion - Central Ranges	5,132,641	5,132,641	~100%	Least concern	
Shire of Ngaanyatjaraku	No information available				
Beard vegetation associations					
- 19	4,888,643	4,885,387	~99.9%	Least concern	0%
- 92	169,760	169,760	~100%	Least concern	0%

\* Shepherd et al. (2001)

\* Shepherd et al. (2001a).

\*\* Department of Natural Resources and Environment (2002)

**Methodology** Department of Natural Resources and Environment (2002).

JANIS Forests Criteria (1997).

Shepherd et al. (2001).

Shepherd et al. (2001a).

GIS Databases:

- Interim Biogeographic Regionalisation of Australia - EA 18/10/00.
- Interim Biogeographic Regionalisation of Australia (subregions) - EA 18/10/00.
- Local Government Authorities - DLI 8/07/04
- 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 is one non-perennial watercourses that partially falls within the area proposed to be cleared (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 within the project area are likely to flow (Metals Exploration Limited pers. comm. 19th October 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 (Metals Exploration Limited pers. comm. 19th October 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 these watercourses will be impacted upon through the clearing activity.

With consideration to the above, it is not likely that the clearing as proposed is at variance to this principle.

**Methodology** HGM (2002).

GIS Databases:

- Hydrography, linear - DOE 01/02/04.

**(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 (Metals Exploration Limited pers. comm. 19th October 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' (Metals Exploration Ltd, 2006). A condition has also been imposed on the permit to prevent the further introduction and spread of weeds throughout the project area.

With consideration to the above, it is not likely that the scale of clearing proposed will increase the incidence of land degradation across the project area.

**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 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).

Based on the distance between the project area and the nearest CALM managed reserve, the proposed clearing is not considered 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 a minor, non-perennial watercourse partially exists within the project area, 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 (Metals Exploration Limited pers. comm. 19th October 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 (Metals Exploration Limited pers. comm. 19th October 2006). Drilling will be of shallow holes and it is not anticipated that the watertable will be intersected (Metals Exploration Ltd, 2006a). The small amount of clearing associated with this proposal will not impact on the depth to the watertable and thereby increase the 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).

With consideration to the above, the clearing as proposed is not likely to be at variance to this principle.

**Methodology** Metals Exploration Ltd (2006a).  
 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 (Bureau of Meteorology, 1983 as cited in HGM, 2002). The average annual rainfall of 250 mm 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 area is prone to inundation.

The scale of clearing involved will not create a catchment area large enough to increase the incidence of flooding, and it is therefore considered not likely that the clearing as proposed is 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 exploration licence 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 are eight Aboriginal sites of significance (ID 2820, 2821, 2825, 2826, 2827, 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.

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	Decision	Comment / recommendation
Mineral Exploration	Mechanical Removal	1.52	Grant	<p>An assessment of the application has been completed, and it has been determined that the proposal is not at variance to principles e and h. It is considered unlikely that the proposed clearing associated with this proposal is at variance to principles a, b, c, d, f, g, i or j.</p> <p>The assessing officer therefore recommends that the permit be granted subject to the following conditions:</p> <ol style="list-style-type: none"> <li>The Permit Holder shall ensure that all vehicles, tools and machinery are cleaned of all soil and plant material when entering either of the areas cross-hatched yellow on Plan 1534/1.</li> <li>For each instance of clearing done under this permit, the Permit Holder must record:               <ol style="list-style-type: none"> <li>the location of where the clearing occurred, expressed as grid coordinates using the Geocentric Datum of Australia 1994 coordinate system;</li> <li>the size of the areas cleared in hectares; and</li> <li>the dates on which the area was cleared.</li> </ol> </li> <li>The Permit Holder shall provide a report to the Director, Environment Division, of the Department of Industry and Resources by 1 February 2007 and each subsequent year for the life of this permit, setting out the records required under condition 2 of this permit in relation to the clearing activities.</li> </ol>



## 5. References

- CALM (2006) Land clearing proposal advice for CPS 1153/1. Advice to Program Manager, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR). Department of Conservation and Land Management, 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.
- Fortescue Metals Group Limited (2005) Pilbara Iron Ore Project Night Parrot (*Pezoporus occidentalis*) Management Plan. Unpublished report, Western Australia, August 2005.
- Graham & Cowan (2001) Central Ranges 1 (CR1 - Mann-Musgrave 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.
- HGM (2002) Wingellina Baseline Biological Survey. Prepared by Halpern Glick Maunsell for Acclaim Exploration NL. December 2002.
- JANIS Forests Criteria (1997) Nationally agreed criteria for the establishment of a comprehensive, Adequate and Representative reserve System for Forests in Australia. A report by the Joint ANZECC/MCFFA National Forest Policy Statement Implementation Sub-committee. Regional Forests Agreement process. Commonwealth of Australia, Canberra.
- 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.
- Metals Exploration Ltd (2006a) Application for a Clearing Permit on E69/535. Prepared by Metals Exploration Limited on behalf of Hinckley Range Pty Ltd. September 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.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001a) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia (updated 2005).

## 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>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>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:
- is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
  - 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:
- 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.