



## 1. Application details

### 1.1. Permit application details

Permit application No.: 1950/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Sinosteel Midwest Management Pty Ltd

### 1.3. Property details

Property: Temporary Reserve 70/3902.  
Local Government Area: Shire of Cue  
Colloquial name: Weld Range Project

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
40		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** The areas applied to clear have been broadly mapped at a scale of 1:250000 as: Beard Vegetation Association 18: Low woodland; Mulga (*Acacia aneura*) and Beard Vegetation Association 202: Shrublands; Mulga and *Acacia quadrimarginea* scrub (GIS Database).

ecologia Environment Pty Ltd conducted a number of Rare and Priority Flora surveys in the proposed clearing areas in July and November 2006, and February 2007 (ecologia Environment Pty Ltd, 2006; 2007a; 2007b; 2007c; 2007d). Areas proposed for access tracks and drill pads were indicated by the proponent and surveyed by ecologia Environment Pty Ltd using 900 square metre quadrats for proposed drill pad locations, and 10 metre wide foot traverse surveys for proposed access tracks (ecologia Environment Pty Ltd, 2006; 2007a; 2007b; 2007c; 2007d). Voucher collections were made of all conservation significant flora and those species not identifiable in the field; whilst the height, density (coverage) and location were documented for all vouchered specimens (ecologia Environment Pty Ltd, 2006; 2007a; 2007b; 2007c; 2007d).

ecologia Environment Pty Ltd (2006; 2007a; 2007b; 2007c; 2007d) have described the vegetation associations of the different landscape units at both proposed clearing areas (Madoonga and Beebyn). These descriptions are given below:

#### **Madoonga:**

##### Flat/Plain

1. Open low shrubland of predominantly *Acacia aneura* var. *aneura* along with *A. pruinocarpa*, *A. demissa* and occasional *Psyrax latifolia* and *Santalum acuminatum*.
2. Scattered tall *Acacia aneura* var. *aneura*/*Acacia ramulosa* var. *linophylla* shrubs, over scattered low *Eremophila forestii*/*Senna glaucifolia* shrubs, over scattered *Sida* spp./*Solanum lasiophyllum*, over scattered to moderately dense *Aristida contorta* grass.

##### Hill Midslope/Footslope

1. Open low shrubland of predominantly *Acacia aneura* var. *aneura* along with *A. aneura* var. *?microcarpa*, *A. tetragonophylla*, *A. rhodophloia* and *A. cuthbertsonii* subsp. *cuthbertsonii*.
2. Open low shrubland of predominantly *Acacia aneura* var. *aneura* along with *A. ramulosa* var. *linophylla*, *A. sp. Weld Range*, *A. aneura* var. *intermedia*, *A. aneura* var. *?intermedia* intergrade *fuliginea*, *A. minyura*, *Allocasuarina acutivalvis* subsp. *acutivalvis* and *Psyrax suaveolens*.
3. Scattered tall outcropping of *Grevillea berryana* trees, over scattered to open tall *Acacia aneura* var.

*aneura*/Acacia *rhodophloia* shrubs, over scattered low mixed *Eremophila* spp. low shrubs, over scattered *Sida* spp. herbs and grasses.

#### Rocky Outcrop/Hill Crest

1. Open to sparse shrubland of *Acacia aneura* with other mixed *Acacia* species eg. *Acacia ramulosa* var. *linophylla*, *Acacia exocarpoides* and *Acacia minyura* and occasional *Allocasuarina acutivalvis* subsp. *acutivalvis* over an open low shrubland varying comprising *Thryptomene decussata*, *Eremophila glutinosa*, *E. latrobei* subsp. *latrobei*, *E. georgei*, *Dodonaea petiolaris*, *D. viscosa* subsp. *spatulata*.

2. Open tall *Acacia aneura* var. *?argentea* shrubs, over sparse low *Acacia exocarpoides*/*Eremophila latrobei* subsp. *latrobei* shrubs, over scattered *Ptilotus schwartzii* herbs and scattered grasses.

#### **Beebyn:**

#### Flat/Plain

Scattered to sparse tall *Acacia aneura* var. *aneura* shrubs, over scattered to sparse mixed low *Eremophila forestii*/*Senna glaucifolia* shrubs, over sparse *Ptilotus obovatus* var. *obovatus*, over sparse to moderately dense *Aristida contorta* grass.

#### Hill Midslope/Footslope

Isolated tall emergent *Acacia pruinocarpa*/*Grevillea berryana*, over tall *Acacia aneura* var. *aneura*/Acacia *ramulosa* var. *linophylla*/Acacia *rhodophloia* shrubs, over sparse to open mixed low *Eremophila* spp./*Thryptomene decussata*/*Ptilotus* spp. shrubs, over scattered *Sida* spp., over sparse grasses.

#### Rocky Outcrop/Hill Crest

Scattered to open tall *Acacia aneura* var. *aneura* shrubs, over sparse to moderately dense *Thryptomene decussata*/*Eremophila latrobei*/*Eremophila glutinosa*, over sparse to moderately dense *Goodenia* spp. herbs and scattered *Cymbopogon ambiguus* grass.

#### **Clearing Description**

This clearing permit application is for a purpose permit to clear up to 40 hectares of native vegetation within a purpose permit boundary of approximately 2,775 hectares. The proposed clearing will allow the proponent to continue iron ore exploration activities on Weld Range; a prominent line of hills running north east to south west over a distance of approximately 60 kilometres (Sinosteel Midwest Management Pty Ltd, 2007a). To date, 44 lenses of ironstone (numbered W1 -W44) are known from a section of the range which is located approximately 60km north west of Cue (Sinosteel Midwest Management Pty Ltd, 2007a). These lenses are currently the subject of the proponent's exploration drilling program which is proposed to take place over the next 2 - 5 years (Sinosteel Midwest Management Pty Ltd, 2007a). The proposed clearing activities are located on Temporary Reserve 70/3902. This reserve consists of two separate blocks separated by a distance of approximately 15 kilometres; they are colloquially known as Madoonga and Beebyn (named after the pastoral stations on which they lie). The Glen pastoral station also encompasses much of the Temporary Reserve block which is referred to as Madoonga (GIS Database). The proposed clearing activities will allow the proponent to explore lenses W14 and 25 at Madoonga and W7 - W12 and W24 at Beebyn.

#### **Vegetation Condition**

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

to

Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)

#### **Comment**

The assessing officer, Department of Industry and Resources (DoIR) conducted a site visit on 10 July 2007. Goats were observed in the proposed clearing areas in low numbers, whilst evidence of historic mineral exploration was also noted. This included the presence of two exploration adits and established access tracks.

Six introduced flora species were recorded in the proposed clearing area at Beebyn by ecologia Environment Pty Ltd (2006; 2007a; 2007b): Mediterranean Turnip (*Brassica tournefortii*), Nettle - leaf Goosefoot (*Chenopodium murale*), Prickly Paddy Melon (*Cucumis myriocarpus*), Lesser Dodder (*Cuscuta epithimum*), Marshmallow (*Malva parviflora*) and a grass species (*Pentstemonis airoides* subsp. *airoides*). All of these species (with the exception of the latter) show a preference for disturbed areas (Western Australian Herbarium, 2007). The Mediterranean Turnip, Nettle-leaf Goosefoot and Marshmallow were restricted to one particular site at lense W11. Coverage of each species was less than two percent (ecologia Environment Pty Ltd, 2006). The introduced grass species was restricted to one proposed drill pad site at lense W7, also with coverage of less than two percent (ecologia Environment Pty Ltd, 2007a; 2007b). Similarly, the Lesser Dodder was restricted to one site at Lense W7 with coverage of less than two percent. The Prickly Paddy Melon was recorded opportunistically near lenses W7 and W8 (ecologia Environment Pty Ltd, 2006). This species was also recorded in low density (less than two percent coverage). No introduced flora species were recorded within the proposed clearing area at Madoonga (ecologia Environment Pty Ltd, 2006; 2007a; 2007b; 2007c; 2007d).

Care needs to be taken to ensure that the proposed clearing (and subsequent drilling activities) do not spread or introduce the above listed weed species to non infested areas. The proponent will conduct all clearing and drilling activities in accordance with their Exploration Environmental Management Plan 06 - Weed Management (Sinosteel Midwest Management Pty Ltd, 2007b). Key management actions outlined in this document include (Sinosteel Midwest Management Pty Ltd, 2007b):

- All vehicles, earthmoving/mobile plant and construction equipment will be washed down and cleaned of all vegetative, soil and rock material, prior to arrival on site;
- Approval will be required before entering or leaving known weed infested quarantine areas;
- Spot spraying of emergent weed species within project areas will be carried out to gradually deplete seed stocks and reduce or eliminate any new colonisation generated by work activities; and
- At the completion of the exploration phase, weed infestation status surveys will be commissioned by Sinosteel Midwest Management Pty Ltd using suitably qualified external consultants.

### 3. Assessment of application against clearing principles

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

##### Comments

##### Proposal may be at variance to this Principle

The proposed clearing areas are located approximately 60 kilometres north-west of Cue in the Western Murchison subregion of the Murchison Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). The Western Murchison subregion is characterised by Mulga low woodlands, often rich in ephemerals and usually with bunch grasses (CALM, 2001). Rare features of the subregion include calcrete aquifers which are known to support a wide range of subterranean aquatic short range endemic fauna (CALM, 2001). Studies have shown that significant stygofauna exists in the Murchison bioregion, especially at Austin Downs and Killara Stations (CALM, 2001) (located 30 - 45 kilometres south and 100 kilometres north-east of the proposed clearing areas respectively). The climate of the subregion is arid, and is characterised by winter rainfall (CALM, 2001). The land use for the region is dominated by pastoralism (96.2%), whilst Unallocated Crown Land and Crown reserves comprise approximately 2.81% (CALM, 2001). Mining is also having an increasing interest in the subregion.

More specifically, the proposed clearing areas are located on Weld Range, a banded ironstone formation consisting of three parallel ridges with deeply incised valleys (Sinosteel Midwest Management Pty Ltd, 2007a). The Weld Range is approximately three kilometres wide and some 60 kilometres in length (Sinosteel Midwest Management Pty Ltd, 2007a). Markey & Dillon (2006) describe the banded ironstone formations in the Mid-West and Yilgarn regions as a series of isolated peaks, hills and ranges in an ancient and topographically subdued landscape. Whilst knowledge of the biodiversity significance of banded ironstone formations is incomplete, current knowledge indicates that they are important refuges for both flora and fauna (Markey & Dillon, 2006).

In late August 2005, Markey & Dillon (2006) conducted a flora and vegetation survey of the Weld Range in an attempt to provide more detailed knowledge of the floristic communities present. A total of 103 quadrats (each 400 square metres in size) were surveyed across the range, spanning a distance of approximately 42 kilometres (Markey and Dillon, 2006). The survey identified and described eight vegetation communities for Weld Range, including a total of 243 taxa. No species endemic to Weld Range were identified in this survey (Markey & Dillon, 2006). Most of the taxa identified are typical of the Eremaen Botanical Province, however a number of taxa more representative of the Pilbara and southern regions were also identified (Markey & Dillon, 2006). No Declared Rare Flora species were identified, however seven Priority species were located; five of these being new records for Weld Range (Markey & Dillon, 2006). Four of these species represented significant range extensions, emphasizing the importance of the Weld Range as habitat for rare and unusual taxa (Markey & Dillon, 2006). At least 16 unnamed species and three new hybrid combinations were recorded, therefore approximately seven percent of the flora of Weld Range are not formally described (Markey & Dillon, 2006).

From a faunal perspective, there have been few surveys undertaken on Weld Range to date (ecologia Environment Pty Ltd, 2007e). The invertebrate and vertebrate fauna surveys undertaken by ecologia Environment Pty Ltd (2007e) represent an important source of fauna information for the Weld Range area. Preliminary results from these surveys have shown that the area was once important habitat for a number of native mammal species now considered extinct or locally extinct (ecologia Environment Pty Ltd, 2007e). Whilst incomplete, invertebrate short range endemic surveys have shown that the Weld Range supports a new undescribed species of Curtain-Web Spider, and a vulnerable trapdoor spider. Five other trapdoor spider species were also recorded, but require further sampling and study to determine if they are significant. In terms of habitat, Weld Range is of significance at the bioregional scale given that it is an elevated feature in a subdued landscape characterised by undulating low relief (Markey & Dillon, 2006).

Weld Range includes a number of different pastoral leases, and consequently Markey & Dillon (2006) noted large numbers of goats and heavily grazed vegetation in some areas. The Glen, Madoonga and Beebyn pastoral leases all overlap the proposed clearing areas (GIS Database). Goats were observed in the proposed

clearing areas in low numbers by the assessing officer, DoIR during a site visit on 10 July 2007. The presence of feral goats in the proposed clearing areas could be expected to have adverse impacts upon the biodiversity values of the area.

Gold and iron ore exploration has taken place at Weld Range since the beginning of the 20th Century (Markey & Dillon, 2006) with modern exploration techniques being undertaken since 1959 (Midwest Corporation Ltd, 2007). Between 1970 and 1981, an exploration drilling program was undertaken, which included the driving of two exploration adits through the range in the Madoonga and Beebyn areas (Midwest Corporation Ltd, 2007). Previous exploration has taken place in the proposed clearing areas, and this is likely to have adversely impacted upon the biodiversity values of the area. Where practicable, the proponent will make use of these existing disturbed areas in order to keep disturbance to a minimum (Sinosteel Midwest Management Pty Ltd, 2007b).

With consideration to the proposed clearing activity, it must be stated that the area applied to clear (40 hectares) represents a very small percentage of the Weld Range formation, which is approximately 60 kilometres in length and 3 kilometres in width. Based on the flora and vegetation surveys undertaken by Markey & Dillon (2006) and ecologia Environment Pty Ltd (2006; 2007a; 2007b; 2007c; 2007d), it is unlikely that the vegetation and habitat types present within the proposed clearing areas are restricted to that particular location of Weld Range. Notwithstanding this, there are six Priority Flora species present in the proposed clearing areas and a trapdoor spider species which has not been previously described (ecologia Environment Pty Ltd, 2007e; Sinosteel Midwest Management Pty Ltd, 2007a). The presence of such taxa increases the biological diversity value of the areas under application.

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

#### Methodology

CALM (2001).  
ecologia Environment Pty Ltd (2006)  
ecologia Environment Pty Ltd (2007a)  
ecologia Environment Pty Ltd (2007b)  
ecologia Environment Pty Ltd (2007c)  
ecologia Environment Pty Ltd (2007d)  
ecologia Environment Pty Ltd (2007e)  
Markey & Dillon (2006).  
Midwest Corporation Ltd (2007).  
Sinosteel Midwest Management Pty Ltd (2007a).  
Sinosteel Midwest Management Pty Ltd (2007b).  
GIS Databases:  
- Interim Biogeographic Regionalisation for Australia (Subregions) - EA - 18/10/00.  
- Pastoral Leases - DOLA 10/01.

### **(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 may be at variance to this Principle**

Sinosteel Midwest Management Pty Ltd commissioned ecologia Environment Pty Ltd (2007e) to conduct vertebrate and invertebrate fauna surveys across Weld Range (this included, but was not limited to, the clearing permit application areas). The first phase of the vertebrate fauna survey was conducted between 18 September and 3 October 2006 (ecologia Environment Pty Ltd, 2007e). Two survey sites were located in the proposed clearing area at Madoonga, whilst two survey sites were also located in the proposed clearing area at Beebyn (ecologia Environment Pty Ltd, 2007e). Four other sites located outside of the proposed clearing areas were also surveyed. The second phase of the vertebrate fauna survey was conducted between 12 April and 20 April 2007 (ecologia Environment Pty Ltd, 2007e). An additional three survey sites located outside of the proposed clearing areas were added to the initial survey sites selected. The purpose of this was to expand the coverage of habitat types and increase the number of trap nights (ecologia Environment Pty Ltd, 2007e). Both phases of the survey involved a combination of pitfall trapping, Elliot trapping and cage trapping at each survey site (ecologia Environment Pty Ltd, 2007e). Active searching for frogs, mammals and reptiles was also undertaken during the day and night, whilst bird surveys were conducted in accordance with Birds Australia guidelines (ecologia Environment Pty Ltd, 2007e).

Invertebrate short range endemic surveys were undertaken over a four month period between August and November 2006 (ecologia Environment Pty Ltd, 2007e). This included 29 pitfall trap sites (15 of which were located on slopes of the range, whilst the remaining 14 were located on the flats surrounding the range) (ecologia Environment Pty Ltd, 2007e). Shaded microhabitats were particularly targeted on the slopes, whilst vegetation aggregations (for example, along creek lines) were the subject of the trapping on the flats. Of the 29 pitfall trap sites, six were located within the proposed clearing areas (ecologia Environment Pty Ltd, 2007e).

Based on the above mentioned surveys and a search of the Department of Environment and Conservation's (DEC's) Threatened and Priority Fauna Database, the following vertebrate fauna of conservation significance have been listed as present or likely to be present in the clearing permit application areas (ecologia Environment Pty Ltd, 2007e): Stick-nest Rat (*Leporillus apicalis*), Slender-billed Thornbill (*Acanthiza iredalei*

iredalei), Peregrine Falcon (*Falco peregrinus*), Bilby (*Macrotis lagotis*), Major Mitchell's Cockatoo (*Cacatua leadbeateri*), Skink (*Lerista eupoda*), Long-tailed Dunnart (*Sminthopsis longicauda*), Bush-stone Curlew (*Burhinus grallarius*), and Crested Bellbird (*Oreoica gutturalis gutturalis*).

Old nests of the Stick-nest Rat (listed as 'Extinct' under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*) were found at Weld Range. This species is not thought to be present (ecologia Environment Pty Ltd, 2007e).

The Slender-billed Thornbill (listed as 'Vulnerable' under the *EPBC Act 1999*) was recorded north of Madoonga Station (outside of the clearing permit application areas) (ecologia Environment Pty Ltd, 2007e).

The preferred habitat of this species is low heath shrublands and samphire (Garnett & Crowley, 2000). These habitat types are not found in the proposed clearing areas (ecologia Environment Pty Ltd, 2006; 2007a; 2007b; 2007c; 2007d). It is therefore unlikely that the proposed clearing activities will have any significant impact upon the Slender-billed Thornbill.

The Peregrine Falcon (listed as Schedule 4 - Other Specially Protected Fauna, *Wildlife Conservation Act 1950*) has previously been recorded in the vicinity of Weld Range (ecologia Environment Pty Ltd, 2007e). Whilst not recorded within the proposed clearing areas, it is likely that this species would use habitat in this area (ecologia Environment Pty Ltd, 2007e). Given that the Peregrine Falcon is a mobile and wide-ranging species (Garnett & Crowley, 2000), it is not likely that the proposed clearing will result in a loss of significant habitat for this species (ecologia Environment Pty Ltd, 2007e).

The Bilby (listed as 'Vulnerable' under the *EPBC Act 1999* and Schedule 1 'Fauna that is rare or likely to become extinct' *Wildlife Conservation (Specially Protected Fauna) Notice 2006*) has previously been recorded in the Weld Range area according to the DEC's Threatened and Priority Fauna Database. The last confirmed sighting of this species was in 1961 (ecologia Environment Pty Ltd, 2007e). ecologia Environment Pty Ltd (2007e) did not record any evidence of bilby activity during the fauna surveys. It is therefore considered unlikely that the Bilby will be impacted by the proposed clearing.

Major Mitchell's Cockatoo (listed as Schedule 4 - Other Specially Protected Fauna, *Wildlife Conservation Act 1950*) has previously been recorded in the Weld Range area according to the DEC's Threatened and Priority Fauna Database. This species requires hollow bearing Eucalyptus trees for nesting (Garnett & Crowley, 2000). Vegetation and flora surveys conducted by ecologia Environment Pty Ltd (2006; 2007a; 2007b; 2007c; 2007d) suggest that hollow bearing Eucalypts are not present in the areas applied to clear. Whilst the Major Mitchell's Cockatoo may use habitat in the proposed clearing areas for foraging, these areas are not representative of suitable nesting habitat. It is unlikely that the proposed clearing activities will have a significant impact upon this species.

*Lerista eupoda* (listed as Priority 1 on the DEC's Threatened and Priority Fauna list) is a skink endemic to Western Australia. Western Australian Museum (2003) records indicate that this species is known from the arid midwest interior in the vicinity of Cue and Meekatharra. During the fauna surveys undertaken by ecologia Environment Pty Ltd (2007e), this species was recorded on several occasions in pitfall traps within the proposed clearing area at Beebyn, as well as on the flats outside of the clearing permit application areas. A herpetological expert at the Western Australian Museum explained that *Lerista eupoda* is widely distributed and has previously been recorded on soft sandy soils under leaf litter, in addition to hard coarse soils (Western Australian Museum, pers. comm, 24 August 2007). The fact that this species is only known from a few collections is not necessarily a reflection of its rarity, but is more than likely a result of inadequate survey at the regional level (Western Australian Museum, pers. comm, 24 August 2007). The herpetological expert advised that the localised clearing proposed for exploration purposes is unlikely to have a significant impact upon this species (Western Australian Museum, pers. comm, 24 August 2007).

The Long-tailed Dunnart (listed as Priority 4 on the DEC's Threatened and Priority Fauna list) was recorded on one occasion within a pitfall trap within the proposed clearing area near W7 at Beebyn (ecologia Environment Pty Ltd, 2007e). This species is known to inhabit rocky scree slopes and breakaways with fine red soil (Burbidge, et al, 1995). Preferred vegetation is typically Mulga (*Acacia aneura*), usually over hummock grasses and shrubs in a tall open shrubland or woodland (Burbidge, et al, 1995). The proposed clearing areas represent suitable habitat for this species. However, the Long-tailed Dunnart is found in rocky areas in the Pilbara, Murchison, north eastern Goldfields, Ashburton and Gibson Desert regions (Western Australian Museum, 2003). It is therefore unlikely that the proposed clearing of 40 hectares will affect the conservation status of this species.

The Bush-stone Curlew (listed as Priority 4 on the DEC's Threatened and Priority Fauna list) was opportunistically recorded on the western edge of the Temporary Reserve at Madoonga via a solitary bird call heard during a night survey (ecologia Environment Pty Ltd, 2007e). This species is sedentary and inhabits sparsely grassed and lightly timbered open forests and woodlands, often where there is leaf litter and fallen timber on the ground (Garnett and Crowley, 2000). This species is more likely to occur on the flat plains surrounding the range as opposed to the rocky and elevated environment of the proposed clearing areas.

The Crested Bellbird (listed as Priority 4 on the DEC's Threatened and Priority Fauna list) has previously been recorded in the Weld Range area according to the DEC's Threatened and Priority Fauna Database. In Western Australia, this species is restricted to inland areas in the south west (Garnett & Crowley, 2000). The Crested

Bellbird inhabits Eucalypt woodlands, Mallee and Acacia shrublands, Triodia hummock grasslands, heath and saltbush (Garnett & Crowley, 2000). Based on habitat preferences, the Crested Bellbird may use habitat in the proposed clearing area. Given that the Western Murchison subregion is largely uncleared (Shepherd et al, 2001) it is unlikely that the proposed clearing will result in a loss of significant habitat for this species.

Numerous old and degraded mounds of the Burrowing Bettong (*Bettongia lesueur graii*) were recorded by ecologia Environment Pty Ltd (2007e) during the fauna surveys at Weld Range. This species is listed as 'Extinct' under the *EPBC Act 1999* and is therefore not considered to exist in the area.

Based on habitat preferences and known distributions, the Malleefowl; *Leiopa ocellata* (listed as 'Vulnerable' under the *EPBC Act 1999* and Schedule 1 'Fauna that is rare or likely to become extinct' *Wildlife Conservation (Specially Protected Fauna) Notice 2006*) could be expected to occur in the proposed clearing areas. ecologia Environment Pty Ltd (2007e) found no evidence of the Malleefowl in the proposed clearing areas, however some old mounds were observed on the flats in the surrounding area. The Malleefowl requires sandy substrates and leaf litter to build nesting mounds (Garnett & Crowley, 2000), therefore it is unlikely that the scree slopes and stony surface mantle of the proposed clearing areas provide suitable nesting habitat (DEC, 2007).

Invertebrate short range endemic surveys conducted at Weld Range located two male specimens of the Shield-Back Trapdoor Spider; *Idiosoma nigrum* (ecologia Environment Pty Ltd, 2007e). These collections were made outside of the clearing permit application areas. Populations of this species have been declining, particularly in the Wheatbelt where this species used to occur throughout, but is now almost extinct in this region due to agriculture and dryland salinity (ecologia Environment Pty Ltd, 2007e). Consequently, the Shield-Back Trapdoor Spider is listed as 'Vulnerable' on the DEC list of threatened fauna. Collections of the Shield-Back Trapdoor Spider at Weld Range represent new data on the geographical distribution of this species (ecologia Environment Pty Ltd, 2007e). Prior to this collection, the northern most collection of this species was from Nerren Nerren station close to Morowa (ecologia Environment Pty Ltd, 2007e). Recent surveys by ecologia Environment Pty Ltd have changed the northern most boundary of this species to Jack Hills, located approximately 100 kilometres north of Weld Range (ecologia Environment Pty Ltd, 2007e). Further surveys will be undertaken to map the distribution of this species at Weld Range (ecologia Environment Pty Ltd, 2007e). Given that no specimens were trapped within the proposed clearing area and this species is not restricted to Weld Range, it is unlikely that the proposed clearing of 40 hectares within a 2,775 hectare application area will have a significant impact upon the Shield-Back Trapdoor Spider.

A new undescribed species of Curtain-Web Spider was recorded during invertebrate short range endemic surveys at Weld Range (ecologia Environment Pty Ltd, 2007e). DNA analysis shows that the new species differs from specimens collected at the type locality of *Cethegus fugax* in Mt Helena, Perth (ecologia Environment Pty Ltd, 2007e). A total of eleven specimens of this new species were collected on southern hillsides within the proposed clearing area at Madoonga, and on another ridge further to the west (ecologia Environment Pty Ltd, 2007e). Nests of this species occupy an almost continuous belt across the proposed clearing area at Madoonga, and extend to a ridge further to the west which is outside of the proposed clearing area (ecologia Environment Pty Ltd, 2007e). The proposed clearing (and subsequent drilling) activities will affect this species through both land clearance and vibrations, however the population across the range is large enough not to be significantly affected by this proposal (ecologia Environment Pty Ltd, 2007e).

Five other trapdoor spider species were recorded at Weld Range by ecologia Environment Pty Ltd (2007e). Very little is known about the ecology or distribution of any of these species due to limited work and sampling (ecologia Environment Pty Ltd, 2007e). Only one of these species was recorded within the proposed clearing area, and this species was also trapped at six sites outside of the area under application (ecologia Environment Pty Ltd, 2007e).

Stygofauna and troglifauna sampling is currently being conducted at Weld Range (Sinosteel Midwest Management Pty Ltd, 2007a). Results of this sampling are not yet available, however the proposed vegetation clearing is not expected to have any significant impact upon groundwater levels or quality. Therefore if stygofauna and/or troglifauna are present, they are not likely to be impacted by the proposed vegetation removal.

Whilst the soils, landforms and vegetation in the proposed clearing area provide habitat for a number of fauna species indigenous to Western Australia, it is unlikely that they are restricted in distribution. Markey & Dillon (2006) noted that vegetation types across the Weld Range differed between dolerite and banded ironstone substrates, and according to landform (crest, outcrop, scree slopes, lower slopes), but noted that there was no geographical segregation of the floristic communities along the range. It is therefore likely that habitats present within the proposed clearing areas are represented elsewhere on Weld Range. Furthermore, all disturbed areas will be rehabilitated in accordance with the proponents exploration environmental management plan (Sinosteel Midwest Management Pty Ltd, 2007b) to standards acceptable by DoIR. Habitat loss from these areas is therefore likely to be temporary.

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

**Methodology** Burbidge, et al (1995).  
DEC (2007).  
ecologia Environment Pty Ltd (2006).

ecologia Environment Pty Ltd (2007a).  
ecologia Environment Pty Ltd (2007b).  
ecologia Environment Pty Ltd (2007c).  
ecologia Environment Pty Ltd (2007d).  
ecologia Environment Pty Ltd (2007e).  
Garnett & Crowley (2000).  
Shepherd et al (2001).  
Sinosteel Midwest Management Pty Ltd (2007a).  
Sinosteel Midwest Management Pty Ltd (2007b).  
Western Australian Museum (2003).

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

**Comments Proposal is not likely to be at variance to this Principle**

There are no known Declared Rare Flora (DRF) species within the proposed clearing areas (GIS Database). Two DRF species are known from the Murchison bioregion; *Eremophila Rostrata ms* and *Conospermum toddii* (ecologia Environment Pty Ltd, 2006). Neither of these species have been recorded within the proposed clearing areas despite numerous Rare and Priority Flora surveys by ecologia Environment Pty Ltd in July 2006, November 2006 and February 2007 (ecologia Environment Pty Ltd, 2006; 2007a; 2007b; 2007c; 2007d). Markey & Dillon (2006) did not locate any DRF species on Weld Range, despite a flora and vegetation survey in late August 2005, spanning 42 kilometres and including 103 quadrats, each 400 square metres in size. It is therefore unlikely that any DRF species will be impacted by the proposed clearing.

Six Priority Flora species have been identified within the proposed clearing areas (Sinosteel Midwest Management Pty Ltd, 2007a): *Micromyrtus placoides ms* (P1), *Prostanthera petrophila* (P1), *Beyeria sp. Murchison* (P2), *Acacia speckii* (P3), *Baeckea sp. Melita Station* (P3) and *Verticordia jamiesonii* (P3).

*Micromyrtus placoides ms* is a rounded shrub growing 0.5 - 2.5 metres high (ecologia Environment Pty Ltd, 2006). This species is known to grow on a number of different substrates, including ironstone (ecologia Environment Pty Ltd, 2006). *M. placoides ms* was recorded on nine proposed drill pads at Beebyn, on the outer edge of a proposed drill pad at Madoonga, and opportunistically whilst walking between drill pad areas (ecologia Environment Pty Ltd; 2007a; 2007b; 2007d). Populations recorded were typically small, consisting of less than ten plants with coverage less than two percent (ecologia Environment Pty Ltd, 2006; 2007b; 2007c).

Markey & Dillon (2006) conducted a flora and vegetation survey of the Weld Range, surveying an area approximately 42 kilometres in length. This survey reported *M. placoides ms* to be found along the length of the Range, not restricted to one particular location (Markey & Dillon, 2006). Western Australian Herbarium (2007) records indicate that there are ten other recorded collections of *M. placoides ms*, from locations including Mullewa, Cue and Talling Peak.

*Prostanthera petrophila* is a spreading shrub which grows to a height of 0.6 - 2 metres (ecologia Environment Pty Ltd, 2006). This species is known from rocky banded ironstone outcrops and laterite soils (Western Australian Herbarium, 2007). Within the proposed clearing areas, *P. petrophila* was recorded from three proposed drill pad sites at Beebyn, two proposed drill pad sites at Madoonga, and opportunistically at both sites (ecologia Environment Pty Ltd, 2006; 2007a; 2007b; 2007c). Each recorded population was healthy and consisted of less than ten plants (ecologia Environment Pty Ltd, 2006; 2007a; 2007b; 2007c).

Markey & Dillon (2006) recorded *P. petrophila* to be found along the length of Weld Range during a flora and vegetation survey conducted in late August 2005, whilst this species has previously been recorded from a number of other locations including Cue, Mt Barloweerie, Woolgorong and Talling Peak (Western Australian Herbarium, 2007).

*Beyeria sp. Murchison* is an erect perennial shrub growing 0.5 to 1.5 metres in height (ecologia Environment Pty Ltd, 2007b). This species was recorded from one proposed drill pad site at Beebyn, and opportunistically at Beebyn (ecologia Environment Pty Ltd, 2006; 2007a; 2007b). Western Australian Herbarium (2007) records indicate that *B. sp. Murchison* has been collected from five locations including Wiluna West Range and Bulga Downs Station.

*Acacia speckii* is a bushy, rounded shrub or tree, 1.5 - 3 metres in height. This species occurs on rocky soils over granite, basalt or dolerite (ecologia Environment Pty Ltd, 2007b). *A. speckii* was recorded on one proposed drill pad site at Beebyn (ecologia Environment Pty Ltd, 2007b). Markey & Dillon (2006) reported *A. speckii* to occur along the length of Weld Range. This species is known from 17 records at the Western Australian Herbarium, including collections taken from near Yalgoo, Meekatharra, Norie Station, Mingah Range and Coodardy (Western Australian Herbarium, 2007).

*Baeckea sp. Melita Station* is an upright shrub growing to 2.5 metres in height (Western Australian Herbarium, 2007). This species is typically found on dark red rocky soil over ironstone in Mulga shrublands (Western Australian Herbarium, 2007). *B. sp. Melita Station* is known from 13 records at the Western Australian Herbarium (2007), including collections from Leinster and Leonora. In the proposed clearing areas, this species

was found at one proposed drill pad site at Beebyn (ecologia Environment Pty Ltd, 2007a; 2007b).

*Verticordia jamiesonii* is a small, irregularly branched, rounded shrub growing up to 0.6 metres in height (Western Australian Herbarium, 2007). This species has been recorded from at least 13 locations, including Mt Hale, Noonie Hills, Cue, Yalgoo and South Warburton (Western Australian Herbarium, 2007). Within the proposed clearing area, *V. jamiesonii* was recorded at one location within five metres of a proposed drill pad site. Density (coverage) was noted to be less than two percent (ecologia Environment Pty Ltd, 2006).

In addition to the above listed Priority Flora species, the Priority 1 species *Stenanthemum patens* may have been collected from the proposed clearing areas (ecologia Environment Pty Ltd, 2007d). One taxon was identified only to genus level as *Stenanthemum sp.* The lack of flowers or fruiting bodies restricted identification of this taxon to species level (ecologia Environment Pty Ltd, 2007d). *Stenanthemum patens* has previously been recorded at Weld Range by Markey & Dillon (2006), therefore the locations of *Stenanthemum sp.* were recorded and will be treated as per Priority taxa (ecologia Environment Pty Ltd, 2007d).

ATA Environmental (2004) previously recorded a small population of *Grevillea inconspicua* (P4) within the proposed clearing area at Madoonga. This species was not found by ecologia Environment Pty Ltd (2006; 2007a; 2007b; 2007c; 2007d) during targeted DRF and Priority Flora searches of the proposed disturbance areas. Markey & Dillon (2006) did not find *G. inconspicua* on Weld Range despite a flora and vegetation survey spanning approximately 42 kilometres.

A number of other Priority flora species are known from Weld Range, but were not found within the proposed clearing areas by ecologia Environment Pty Ltd (2006; 2007a; 2007b; 2007c; 2007d). These include: *Sauropus sp. Woolgorong* (P1), *Dodonaea sp. Ninghan* (P1), *Calytrix verruculosa* (P1), *Grevillea stenostachya* (P3), *Grevillea pauciflora* (P3) and *Ptilotus beardii* (P3).

One flora species of interest to the DEC was commonly recorded in the proposed clearing areas (ecologia Environment Pty Ltd, 2007d). This species (*Acacia sp. Weld Range*) has a known association with Banded Ironstone Formations and was referred to the DEC Species and Communities Branch for consideration as Priority Flora (DEC, 2007). Further studies have revealed that *Acacia sp. Weld Range* has a much wider distribution than once thought, and is currently not assigned DRF or Priority Flora conservation status (DEC, 2007).

All Priority Flora specimens found within the proposed clearing areas have been clearly demarcated by ecologia Environment Pty Ltd with yellow and blue flagging tape (Sinosteel Midwest Management Pty Ltd, 2007b). In accordance with the proponents' Exploration Environmental Management Plan, no plants tagged yellow and blue will be removed during the clearing operations (Sinosteel Midwest Management Pty Ltd, 2007b). Where required, a botanist will guide the passage of the bulldozer around known populations of Priority Flora using pink and yellow flagging tape (Sinosteel Midwest Management Pty Ltd, 2007b). Wherever practicable to do so, buffers of at least ten metres should be maintained around known locations of Priority Flora (DEC, 2007). However, it must be acknowledged that Priority Flora species do not have any formal legislative protection, unlike DRF species for which written ministerial approval is required to take, in accordance with Section 23F of the *Wildlife Conservation Act 1950*.

Given the findings of the DRF and Priority Flora searches and the management measures outlined by the proponent, it is unlikely that the proposed clearing activities will have a significant detrimental impact on any Rare, Priority or otherwise significant flora species.

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

**Methodology** ATA Environmental (2004).  
DEC (2007).  
ecologia Environment Pty Ltd (2006).  
ecologia Environment Pty Ltd (2007a).  
ecologia Environment Pty Ltd (2007b).  
ecologia Environment Pty Ltd (2007c).  
ecologia Environment Pty Ltd (2007d).  
Markey & Dillon (2006).  
Sinosteel Midwest Management Pty Ltd (2007a).  
Sinosteel Midwest Management Pty Ltd (2007b).  
Western Australian Herbarium (2007).  
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 (TEC's) within, or in close proximity to, the clearing permit application area (GIS Database). There are no known TEC's in the Western Murchison subregion



(CALM, 2001). The nearest known TEC is approximately 247km south-east of the areas under application (GIS Database).

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

**Methodology** CALM (2001).  
GIS Database:  
- Threatened Ecological Communities - CALM 12/04/05.

**(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 areas applied to clear are within the Interim Biogeographic Regionalisation for Australia (IBRA) Murchison bioregion (GIS Database). According to Shepherd et al (2001) there is approximately 100% of the pre-European vegetation remaining in the Murchison bioregion. The vegetation of the application areas is classified as Beard Vegetation Association 18: Low woodland; Mulga (Acacia aneura) and Beard Vegetation Association 202: Shrublands; Mulga and Acacia quadrimarginea scrub (GIS Database). There is approximately 100% of the pre-European vegetation remaining of both Beard Vegetation Associations 18 and 202 in the Murchison bioregion (Shepherd et al, 2001).

Whilst Beard Vegetation Associations 18 and 202 are not well represented in conservation reserves within the Murchison bioregion, the areas proposed to clear do not represent significant remnants of vegetation in the wider regional area. The proposed clearing will not reduce the extent of Beard Vegetation Associations 18 or 202 below current recognised threshold levels, below which species loss increases significantly.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Murchison	28,120,558	28,120,558	100%	Least concern	1.1%
Beard veg assoc. – State					
18	19,892,437	19,890,348	99.99%	Least concern	2.12%
202	448,534	448,534	100%	Least concern	0%
Beard veg assoc. – Bioregion					
18	12,403,248	12,403,248	100%	Least concern	0.4%
202	339,742	339,742	100%	Least concern	0%

\* Shepherd et al. (2001)

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

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

**Methodology** Department of Natural Resources and Environment (2002).  
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 no significant watercourses or wetlands in the proposed clearing area (GIS Database). Some minor drainage lines are present, however Sinosteel Midwest Management Pty Ltd (2007b) have indicated that drill pads will be situated away from drainage lines, and a buffer zone of at least 20 metres will be established. Should any access tracks need to be constructed across drainage lines, this will be done in accordance with the proponent's Exploration Environmental Management Plan (Sinosteel Midwest Management Pty Ltd, 2007b). Measures outlined in this document include (Sinosteel Midwest Management Pty Ltd, 2007b):

- access tracks will be kept to a minimum width possible without threatening driver safety;

- clearance of vegetation along natural drainage systems will be minimised; and
- tracks will avoid unnecessary impact on natural drainage.

Based on the vegetation associations described within the proposed clearing areas by ecologia Environment Pty Ltd (2006; 2007a; 2007b; 2007c; 2007d), the proposed clearing activities are not likely to impact upon any significant wetland vegetation assemblages or communities.

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

**Methodology** Sinosteel Midwest Management Pty Ltd (2007b).  
GIS Database:  
- 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 proposed clearing areas are within the Weld land system, characterised by rugged ranges and ridges of Archaean metamorphosed sedimentary rocks supporting Acacia shrublands (Department of Agriculture Western Australia, 1994). The Weld land system is comprised of three main land units (Department of Agriculture Western Australia, 1994):

1. Hill ranges, peaks and summits (rugged ironstone and jaspilite ridges);
2. Foothills and interfluvial (dense quartz and ironstone mantles); and
3. Valley floors (varying metamorphic rock fragments).

Variation exists in soil types between the hill ranges, peaks and summits and the foothills and valley floors (Department of Agriculture Western Australia, 1994). Soils in the ranges and peaks are typically skeletal lithosols confined to pockets of dark red loamy or clay sands, underlain by clay subsoils less than 50 centimetres deep (Department of Agriculture Western Australia, 1994). Parent material can be found at a shallow depth beneath the subsoil (Department of Agriculture Western Australia, 1994). Soils in the foothills and interfluvial are reddish-brown or dark red shallow earths less than 50 centimetres deep and with varying metamorphic rock fragments (Department of Agriculture Western Australia, 1994). Valley floor soils are also shallow, consisting of red earthy sands overlying various metamorphic substrates (Department of Agriculture Western Australia, 1994).

The assessing officer visited the proposed clearing areas on 10 July 2007. A rocky ironstone mantle was noted to provide a protective surface layer, especially on hill ridges, peaks and slopes. As stated by the Department of Agriculture WA (1994), the Weld land system is not susceptible to erosion unless this stony mantle is disturbed. Therefore, there is a moderate risk of soil erosion occurring following vegetation clearing and removal of the stony surface mantle.

To reduce the likelihood of erosion, the proponent will employ the following techniques when constructing drill pads and access tracks (Sinosteel Midwest Management Pty Ltd, 2007b):

- erosion will be minimised by avoiding long, straight tracks and gridlines, and follow contours as much as possible;
- tracks will be constructed under dry soil conditions;
- erosion will be prevented by breaking windrows to allow drainage;
- drill pads are to be kept to the minimum possible size required for safe and practical drilling operations;
- drill pads will be situated away from stands of mature vegetation and if possible, pads will be located in an area that requires minimal or no clearing;
- where practicable, existing roads and tracks will be used in preference to developing new tracks;
- routes will be located along contours and on gravel aprons on the lower slopes of hills to minimise earth moving disturbances and erosion potential; and
- deep cutting into the soil profile will be avoided.

In addition to these measures, the proponent will undertake rehabilitation of all disturbed sites within six months

of completion, unless otherwise approved by DoIR (Sinosteel Midwest Management Pty Ltd, 2007b). Where practicable, project areas will be progressively rehabilitated to ensure that the rate of rehabilitation is similar to the rate of clearing (Sinosteel Midwest Management Pty Ltd, 2007b).

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

**Methodology** Department of Agriculture Western Australia (1994).  
Sinosteel Midwest Management Pty Ltd (2007b).

**(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**

There are no conservation reserves in close proximity to the proposed clearing areas (GIS Database). The nearest conservation reserve is the Toolonga Nature Reserve, located approximately 215 kilometres to the west (GIS Database).

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

**Methodology** GIS Database:  
- CALM Managed Lands and Waters - CALM 01/07/05.

**(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**

There are no permanent surface water features in the proposed clearing areas (GIS Database). Surface water may flow through the areas under application during times of intense rainfall in the form of sheetflow and overland flow. There is a negligible risk of surface flows transporting suspended sediment material from bare and cleared access tracks and drill pads to watercourses further downstream. To minimise adverse impacts to surface water quality, the proponent will implement the following strategies as detailed within their Exploration Environmental Management Plan (Sinosteel Midwest Management Pty Ltd, 2007b):

- topsoil and vegetation will be stockpiled away from watercourses;
- where practicable, clearing of slopes leading to watercourses will be delayed until the construction of the crossing is imminent, thus minimising erosion and sedimentation risk;
- where practicable, construction of watercourse crossings will be scheduled for dry periods; and
- drill pads will be situated away from drainage lines and watercourses with a suitable buffer zone established (at least 20 metres) to avoid direct and indirect impacts such as run off and dust.

Given the small scale of the proposed clearing activities and the management measures outlined by the proponent, the proposed clearing activities are unlikely to degrade surface water quality.

The proposed clearing areas are not located within a Public Drinking Water Source Area (GIS Database). It is unlikely that vegetation removal will result in any significant adverse impacts to groundwater levels or quality given the scale and nature of the proposed clearing activities.

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

**Methodology** Sinosteel Midwest Management Pty Ltd (2007b).  
GIS Databases:  
- Hydrography, linear - DOE 01/02/04.  
- Public Drinking Water Source Areas (PDWSAs) - DOE 28/04/05.

**(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 proposed clearing areas are located on Weld Range (an elevated Banded Ironstone Formation) rising up to 250 metres above the surrounding plain (Sinosteel Midwest Management Pty Ltd, 2007a). Whilst the proposed clearing activities are earmarked for much lower elevations (approximately 20 - 80 metres above the plain) the risk of flooding is negligible given the topography of the site, low average annual rainfall (175 – 200 millimetres) and high average annual evaporation (approximately 3,600 millimetres) (GIS Databases).

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

**Methodology** Sinosteel Midwest Management Pty Ltd (2007a).  
 GIS Databases:  
 - Evaporation Isopleths - BOM 09/98.  
 - Rainfall, Mean Annual - BOM 30/09/01.  
 - Topographic Contours, Statewide - DOLA 12/09/02.

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

**Comments**

There is one native title claim over the areas under application (GIS Database). This claim (WC04/010) has been registered with the National Native Title Tribunal on behalf of the claimant group (GIS Database). However, the mining tenement has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Sites of Aboriginal Significance within the areas applied to clear (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 proposal was referred by the Department of Industry and Resources (DoIR), under section 38 Part IV of the *Environmental Protection Act 1986*, to the Environmental Protection Authority (EPA) to set a level of assessment. On 27 August 2007, the EPA requested that the referral be withdrawn on the basis that adverse environmental impacts associated with the proposal could be adequately managed under the *Environment Protection (Clearing of Native Vegetation) Regulations 2004*, and the *Mining Act 1978*. The EPA will not formally assess this project but expects the proponent and relevant agencies to ensure that it is environmentally acceptable.

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 comments**

Purpose	Method	Applied area (ha)/ trees	Comments
Mineral Exploration	Mechanical Removal	40	<p>The clearing principles have been addressed and the proposed clearing may be at variance to principle (a) and (b), is not likely to be at variance to principle (c), (d), (f), (g), (h), (i) or (j), and is not at variance to principle (e). It is recommended that the clearing permit be granted, subject to the following conditions:</p> <ol style="list-style-type: none"> <li>1. The Permit Holder shall record the following for each instance of clearing:               <ol style="list-style-type: none"> <li>i) the location of where the clearing occurred, expressed as grid coordinates using the Geocentric Datum of Australia 1994 coordinate system;</li> <li>ii) the size of the area cleared in hectares;</li> <li>iii) the dates on which the area was cleared;</li> <li>iv) the area rehabilitated in hectares;</li> <li>v) the method of clearing;</li> <li>vi) the purpose of clearing.</li> </ol> </li> <li>2. When undertaking any clearing, revegetation and rehabilitation, or other activity pursuant to this Permit the Permit Holder must take the following steps to minimise the risk of the introduction and spread of weeds:               <ol style="list-style-type: none"> <li>i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;</li> <li>ii) ensure that no weed-affected road building materials, mulch, fill or other material is brought into the area to be cleared; and</li> <li>iii) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.</li> </ol> </li> <li>3. The Permit Holder shall not clear any Priority Flora within the areas cross hatched red, as shown on attached Plan 1950/1.</li> <li>4. The Permit Holder shall conduct rehabilitation of the areas approved to clear pursuant to this permit in accordance with the document titled: "<i>Sinosteel Midwest Management - Environmental Management Plan (Exploration)</i>", dated April 2007 and retained on Department of Industry and Resources File No: A1115/200701.</li> <li>5. Where a difference exists between the document referred to in Condition 4 and the conditions pursuant to this permit, then the conditions shall prevail.</li> </ol>

6. The Permit Holder shall provide a report to the Director, Environment Division, Department of Industry and Resources by 6 October each year for the life of this permit, demonstrating adherence to all conditions of this permit, and setting out the records required under Condition 1 of this permit in relation to clearing carried out between 1 July and 30 June of the previous financial year.

## 5. References

- ATA Environmental (2004) Vegetation and Flora Survey of Mining Leases M20/468 and M20/469 Weld Range. Report to Midwest Corporation Limited.
- Burbidge, A.A., McKenzie, N.L., & Fuller, P.J (1995) Long-tailed Dunnart. In "The Mammals of Australia" (2nd Edition (ed. R. Strahan). pp. 146-147. Australian Museum, Sydney.
- DEC (2007) Biodiversity advice for land clearing application. Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR), received 1st August 2007. Native Vegetation Conservation Branch, Department of Environment and Conservation, Western Australia.
- Department of Agriculture Western Australia (1994) Technical Bulletin No. 84: An inventory and condition survey of the Murchison River catchment and surrounds, Western Australia. South 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.
- ecologia Environment Pty Ltd (2006) Weld Range Rare and Priority Flora Survey - TR70/3902, E20/208 and M20/311. Prepared for Sinosteel Midwest Management Pty Ltd. 14 November 2006.
- ecologia Environment Pty Ltd (2007a) Rare and Priority Flora Survey - Weld Range. Beebyn & Madoonga infill/stepout & W30, 31 and 45. Prepared for Sinosteel Midwest Management Pty Ltd. 31 January 2007.
- ecologia Environment Pty Ltd (2007b) Rare and Priority Flora Survey - Weld Range. Beebyn 100m and 200m Step-out Drilling Program. Prepared for Sinosteel Midwest Management Pty Ltd. 9 February 2007.
- ecologia Environment Pty Ltd (2007c) Rare and Priority Flora Survey - Weld Range. Madoonga Infill Drilling Program. Prepared for Sinosteel Midwest Management Pty Ltd. 9 February 2007.
- ecologia Environment Pty Ltd (2007d) 2nd Pass Metallurgical Programme; Beebyn (W9 - W11) and Madoonga (W14). Prepared for Sinosteel Midwest Management Pty Ltd. 28 March 2007.
- ecologia Environment Pty Ltd (2007e) Preliminary Fauna Information (Unpublished).
- Garnett, S.T. & Crowley, G.M. (2000) The Action Plan for Australian Birds 2000. Department of the Environment and Water Resources, 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.
- Markey, A.S & Dillon, S.J (2006) Draft Flora and Vegetation of the Banded Ironstone Formations of the Yilgarn Craton: the Weld Range. Science Division, Department of Environment and Conservation.
- Midwest Corporation Ltd (2007) Weld Range Project. Midwest Corporation Ltd. <http://www.midwestcorp.com.au/WeldRange.html>. Accessed 30 August 2007.
- Shepherd, D.P., Beeston, G.R. & Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia (updated 2005).
- Sinosteel Midwest Management Pty Ltd (2007a) Weld Range Direct Shipping Ore Mining Project: Application to Clear Native Vegetation (Purpose Permit) - Supporting Documentation. 2nd July 2007.
- Sinosteel Midwest Management Pty Ltd (2007b) Environmental Management Plan (Exploration). April 2007.
- Western Australian Herbarium (2007). Florabase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.calm.wa.gov.au/>
- Western Australian Museum (2003). Faunabase and WA Faunalist. Search for *Lerista eupoda*. Western Australian Museum. <http://www.museum.wa.gov.au/faunabase/prod/>. Accessed 23 August 2007.
- Western Australian Museum (2003). Faunabase and WA Faunalist. Search for *Smynthopsis longicauda*. Western Australian Museum. <http://www.museum.wa.gov.au/faunabase/prod/>. Accessed 23 August 2007.

## 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.