



## 1. Application details

### 1.1. Permit application details

Permit application No.: 2981/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Pilbara Manganese Pty Ltd

### 1.3. Property details

Property:  
Mining Lease 45/107  
Mining Lease 45/433  
Mining Lease 45/637  
Mining Lease 46/92  
Mining Lease 46/108  
Mining Lease 46/137  
Mining Lease 46/161  
Mining Lease 46/162  
Local Government Area: Shire Of East Pilbara  
Colloquial name: Greensnake Expansion Project

### 1.4. Application

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

## 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 Associations have been mapped at a scale of 1:250,000 for the whole of Western Australia. Two Beard Vegetation Associations are located within the application areas (Shepherd et al., 2001);</p> <p><b>Beard Vegetation Association 173:</b> Hummock grasslands, shrub steppe, Kanji over soft Spinifex and <i>Triodia wiseana</i> on basalt; and</p> <p><b>Beard Vegetation Association 177:</b> Hummock grasslands, sparse shrub steppe; <i>Acacia bivenosa</i> over hard spinifex <i>Triodia brizoides</i>.</p> <p>Mattiske Consulting has conducted two flora and vegetation surveys that have included the application areas. One of the flora and vegetation surveys was conducted in May 2007 and covered Mining Lease 45/433 (Mattiske Consulting, 2007). The second survey was conducted in October 2008 and included Mining Leases 46/637, 46/107, 46/108, 46/92, 46/137, 46/162 and 46/161 (Mattiske Consulting, 2008). In addition to the surveys, MBS Environmental (2009) has provided vegetation community maps of the project area. Sixteen vegetation communities have been identified throughout the Woodie Woodie tenements, seven of which have been mapped as occurring within the application areas (MBS Environmental, 2009):</p> <p>1) Scrub or Thicket of <i>Carissa lanceolata</i>, <i>Petalostyllis labicheoides</i>, <i>Acacia bivenosa</i> and <i>Acacia ancistrocarpa</i> over <i>Triodia pungens</i>, <i>Triodia</i></p>	<p>Pilbara Manganese (2009) proposes to clear up to 300 hectares of native vegetation for the expansion of the Greensnake mining area. The project will involve the expansion of existing pits and development of two waste rock stockpiles and other associated infrastructure (MBS Environmental, 2009). The application areas are located approximately 115 kilometres east of Nullagine (GIS Database).</p> <p>Vegetation will be cleared by mechanical means using a bulldozer (Pilbara Manganese, 2009). All vegetative material and topsoil from cleared areas will be stockpiled and used for future rehabilitation purposes (Pilbara Manganese, 2009).</p>	<p>Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).</p> <p>To</p> <p>Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).</p>	<p>The vegetation condition rating was based on the flora and vegetation surveys of the proposed clearing areas which were conducted by Mattiske Consulting in May 2007 and October 2008.</p> <p>MBS Environmental (2009) reports that the vegetation throughout the application areas has been mainly disturbed by fire and weeds. In addition, as the area is an active mining area there are considerable localised disturbances due to impacts from current and previous mining and exploration activities (MBS Environmental, 2009).</p>

*basedowii*, *Cenchrus ciliaris* and *Chrysopogon fallax* along minor watercourses.

- 2) Scrub or Low Shrubland of *Acacia ancistrocarpa*, *Acacia arida*, *Acacia acradenia*, *Petalostylis labicheoides*, *Gossypium australe*, *Acacia synchronicia* and *Acacia inaequilatera* over *Triodia longiceps* and *Triodia wiseana* with patches of *Cenchrus ciliaris* on flats, often associated with major watercourses.
- 3) Low shrubland of *Acacia arida* and *Acacia hilliana* over *Triodia wiseana* and *Dampiera candidans* on slopes and hilltops.
- 4) Hummock Grassland of *Triodia longiceps* with scattered *Acacia bivenosa*, *Acacia synchronicia* and *Acacia ptychophylla* on flats and slopes.
- 5) Hummock grassland of *Triodia longiceps* and *Triodia wiseana* with occasional *Grevillea wickhamii* subsp. *hispidula* on flats and lower slopes.
- 6) Closed Sedgeland on *Typha domingensis*, with *Cyperus vaginatus* on flats.
- 7) Hummock Grassland of *Triodia basedowii* with *Petalostylis labicheoides*, *Acacia arida*, *Grevillea wickhamii* subsp. *hispidula* and *Hakea lorea* subsp. *lorea* on undulating slopes

### 3. Assessment of application against clearing principles

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

##### Comments

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

The application areas are located within the Chichester subregion of the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). The Chichester subregion is characterised by undulating Archaean granite and basalt plains with significant areas of basaltic ranges (CALM, 2002). At a broad scale, vegetation can be described as shrub steppe characterised by *Acacia inaequilatera* over *Triodia wiseana* hummock grasslands on plains, while *Eucalyptus leucophloia* tree steppes occur on ranges (CALM, 2002).

The geomorphology of the application areas consists of undulating plains on sandstone, alluvial plains and dolomite rises (MBS Environmental, 2009). Within the application areas weakly incised drainage lines exist that flow westwards into the Oakover River, located approximately 6 kilometres from the application areas (MBS Environmental, 2009). The flows within these creeks are ephemeral with no nearby permanent pools or waterholes (MBS Environmental, 2009).

The vegetation within the application areas is described broadly as varying from *Triodia* hummock grassland dominated plains, slopes and hills to *Acacia* shrubland over Tussock grass in minor drainage lines (MBS Environmental, 2009). This vegetation type appears typical of the Chichester subregion when compared to the Chichester subregion vegetation description given by CALM (2002). The proposed clearing areas surround a pre-existing mining area and have suffered disturbance from mine-related activities, fire and weed invasion (MBS Environmental, 2009).

Two flora and vegetation surveys have been conducted over the application areas by Mattiske Consulting in May 2007 and October 2008. The May 2007 survey recorded a total of 101 taxa from 36 families and 72 genera (Mattiske Consulting 2007). The dominant families were *Poaceae* (16 taxa), *Mimosaceae* (ten taxa), *Amaranthaceae* (seven taxa) and *Caesalpinaceae* (seven taxa). The October 2008 flora survey identified a total of 63 plant taxa from 22 families and 35 genera (Mattiske Consulting, 2008). The dominant families were *Mimosaceae* (14 taxa), *Caesalpinaceae* (seven taxa) and *Poaceae* (six taxa) (Mattiske Consulting, 2008). The majority of the application areas are covered by the October 2008 survey, with only a relatively small portion of the north-eastern part of the application areas being covered by the May 2007 survey.

Mattiske Consulting (2007; 2008) identified five weed species during the flora and vegetation surveys: Kapok Bush (*Aerva javanica*), Buffel Grass (*Cenchrus ciliaris*), Pie Melon (*Citrullus lanatus*), Spiked Malvastrum (*Malvastrum americanum*) and Common Purslane (*Portulaca oleracea*). The presence of these introduced weed species lowers the biodiversity value of the proposed clearing areas. Care must be taken to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested areas. Should a clearing permit be granted, it is recommended that a condition be imposed for the purposes of weed

management.

Western Wildlife has conducted two fauna surveys in 2006/2007 and 2008, over numerous tenements within the Woodie Woodie region, including the application areas. These surveys identified four broad habitat types that will be affected by the proposed clearing, however MBS Environmental (2009) has concluded that none of the landforms or habitat types are unique at the local or regional scale. Table 1 below shows the number of vertebrate fauna species recorded during the fauna surveys in comparison to the number of species with the potential to occur:

Table 1: Vertebrate fauna species with the potential to occur within the Woodie Woodie tenements:

	Amphibians	Reptiles	Birds	Mammals	Total
<b>Potential to Occur</b>	7	78	135	50	270
<b>Recorded During Survey</b>	5	59	84	20	168

(MBS Environmental, 2009)

This table indicates that the application areas are potentially high in bird and reptile species, however the landforms, vegetation types and fauna habitats in the application areas are well represented locally and within the Pilbara region generally (MBS Environmental, 2009). Furthermore, the application areas are located immediately adjacent to an established mining area and pit, therefore, it is unlikely that the application areas have greater biological diversity than other, undisturbed areas nearby.

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

**Methodology** CALM (2002)  
Mattiske Consulting (2007)  
Mattiske Consulting (2008)  
MBS Environmental (2009)  
GIS Database  
- Interim Biogeographic Regionalisation for Australia

**(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**

Western Wildlife was commissioned by MBS Environmental to undertake vertebrate fauna surveys in the Woodie Woodie project area in 2006/2007 and 2008. These surveys were conducted in accordance with the Environmental Protection Authority (EPA) Position Statement No. 3 and Guidance Statement 56: *Guidance for the Assessment for Environmental Factors - Terrestrial Fauna for Environmental Impact Assessment in Western Australia* (EPA 2002; 2004). The 2006/2007 reconnaissance survey consisted of trapping at 12 sites throughout the Woodie Woodie tenements whilst the 2008 fauna survey conducted trapping at ten sites throughout the Woodie Woodie project area (Davis and Wilcox, 2007; Western Wildlife, 2008).

From this survey the following four broad habitat types were identified within the application areas (Davis and Wilcox, 2007):

- 1) *Cenchrus ciliaris* dominated plains and minor creeklines with emergent *Acacia*;
- 2) *Triodia* hummock grassland dominated plains;
- 3) Scrub / *Triodia* hummock grassland on low rocky hills and mesas; and
- 4) Sedgeland on flats.

The proposed clearing is likely to result in the following impacts to fauna:

- Mortality of vertebrate and invertebrate species in the clearing footprint area. Sedentary species and young animals are particularly susceptible;
- Displacement of mobile species in the proposed clearing area into surrounding habitats;
- Temporary loss of habitat for foraging and shelter; and
- Localised disturbance from noise and dust pollution.

The Woodie Woodie tenements are known to get visits from various migratory bird species including the Rainbow Bee-eater (*Merops ornatus*), Great Egret (*Ardea alba*) and Wood Sandpiper (*Tringa glareola*) which have all been sighted within the Woodie Woodie area on numerous occasions (Western Wildlife, 2008). The clearing area is quite large and migratory bird species may visit the Woodie Woodie area as it might be important habitat for migratory bird species. However, the vegetation and habitats are well represented in areas adjacent to the application areas and within the Pilbara region generally and therefore, the proposed clearing is unlikely to have a significant impact on migratory bird species.

Within the application areas numerous fauna species of conservation significance have the potential to occur, with several having been recorded within the Woodie Woodie tenements during the fauna surveys. Conservation significant fauna most likely to be impacted by the proposed clearing include (Davis and Wilcox, 2007; Western Wildlife, 2008):

- Australian Bustard (*Ardeotis australis*) – Priority 4 on the Department of Environment and Conservation's (DEC's) Threatened and Priority Fauna list.
- Pilbara Orange Leaf-nosed Bat (*Rhinonictis aurantius*) – Schedule 1 (Fauna that is rare or likely to become extinct), *Wildlife Conservation (Specially Protected Fauna) Notice 2008* and Vulnerable, *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*;
- Star Finch (*Neochima ruficauda subclaescens*) – Priority 4 on the DEC's Threatened and Priority Fauna list.
- Western Pebble-mound Mouse (*Pseudomys chapmani*) – Priority 4 on the DEC's Threatened and Priority Fauna list.

The Australian Bustard is a dispersive species with widespread movements over long distances (DECC, 2005). The Australian Bustard is known to inhabit grasslands, low shrublands, grassy woodlands as well as altered environments such as croplands and airfields (DECC, 2005). The species usually breeds on bare ground, on low sandy ridges or stony rises (DECC, 2005). This species is slow to take flight and is therefore vulnerable to vehicle strike (Davis and Wilcox, 2007). This species has been recorded on numerous occasions throughout the Woodie Woodie tenements (Davis and Wilcox, 2007) and therefore, would be likely to occur within the application areas. However, given the widespread distribution of this species it is unlikely that the vegetation within the application areas would represent significant habitat for this species.

The Pilbara Orange Leaf-nosed Bat is known to generally roost in abandoned mines in the east Pilbara, however, very few roost sites of this species are known (Western Wildlife, 2008). This species requires warm and humid roost sites and feeds in adjacent woodlands (Duncan et al., 1999 as cited in Western Wildlife, 2008). Calls of the Orange Leaf-nosed Bat were recorded in the Woodie Woodie area in 2008, however, this species has not been recorded in any of the prospect areas and there are no suitable roost sites present in the prospect areas, including the application area (Western Wildlife, 2008).

The Star Finch has a patchy distribution within the Pilbara, and can be found at low densities where it occurs (Garnett and Crowley, 2000). The Star Finch inhabits the dense vegetation around swamps, rivers and permanent waterholes in the larger watercourses of the north-west of Western Australia (Johnstone and Storr, 2004 as cited in Davis and Wilcox, 2007). The Star Finch is likely to occur seasonally in small numbers around waterholes in the area and six individuals have previously been recorded in the Woodie Woodie tenements (Davis and Wilcox, 2007). Based on the above, it is possible that this species may occur near the ephemeral creeklines within the application areas seasonally, following rainfall, however, based on its widespread distribution it is unlikely that the vegetation within the application areas would represent significant habitat for this species.

The Western Pebble-mound Mouse generally occurs on gentle slopes of rocky ranges where the ground is covered by a stony mulch and vegetated by hard spinifex, often with an overstorey of eucalypts and scattered shrubs (Van Dyck and Strahan, 2008). Mounds are often sited close to narrow ribbons of *Acacia*-dominated scrub that grow along incised drainage lines (Van Dyck and Strahan, 2008). Numerous mounds of this species have been found throughout the Woodie Woodie tenements, on low rocky hills, however, all mounds found have been old with no evidence of recent activity (Davis and Wilcox, 2007). Suitable habitat for this species is present within the application areas, although, it is considered more likely to occur in areas with larger hills (Davis and Wilcox, 2007). Pilbara Manganese should make all contractors aware that Western Pebble-mound Mouse mounds may be present in rocky places within the application areas and that these should be avoided wherever possible.

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

**Methodology** Davis and Wilcox (2007)  
DECC (2005)  
EPA (2002)  
EPA (2004)  
Garnett and Crowley (2000)  
Van Dyck and Strahan (2008)  
Western Wildlife (2008)

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

**Comments Proposal may be at variance to this Principle**

Mattiske Consulting has conducted two flora and vegetation surveys that have included the application areas. One of the flora and vegetation surveys was conducted in May 2007 and covered Mining Lease 45/433 (Mattiske Consulting, 2007). The second survey was conducted in October 2008 and included Mining Leases 46/637, 46/107, 46/108, 46/92, 46/137, 46/162 and 46/161 (Mattiske Consulting, 2008). These surveys found two Priority flora species within the survey area:

- *Acacia glaucocaesia* (Priority 3).
- *Lepidium amelum* (Priority 1).

In addition to the surveys, MBS Environmental (2009) has provided vegetation maps of the project area. These maps show the position of Priority flora within the area covered by the flora and vegetation survey. These maps illustrate that there are no known specimens of *Lepidium amelum* occurring within the application areas and that this species is located more than 500 metres from the application areas (MBS Environmental, 2009). The vegetation maps illustrate that there have been four recorded occurrences of *Acacia glaucocaesia* within the southern application area (MBS Environmental, 2009).

Two records of *Acacia glaucocaesia*, found in the Woodie Woodie area, were added to Department of Environment and Conservation's (DEC's) Florabase in January 2009 (DEC, 2009). Both records were found within habitat consisting of hummock grasslands of *Triodia basedowii* with *Corchorus laniflorus* and occasional *Acacia synchronicia* (DEC, 2009). They were found on red soil flats and undulating plains associated with watercourses (DEC, 2009). The records of this species report that this species was scattered throughout the areas it was found in (DEC, 2009). In addition, this species was recorded at nine locations within the flora and vegetation survey area and has been found at 17 sites within the Woodie Woodie tenements (MBS Environmental, 2009).

MBS Environmental (2009), report that two out of the four populations of *Acacia glaucocaesia* occurring within the southern application area may be impacted by the proposed clearing. The habitat this species has been recorded as occurring in is widespread throughout the Woodie Woodie area and in addition, there are numerous records of this species throughout the Woodie Woodie tenements (DEC, 2009; MBS Environmental, 2009).

Based on the above, the proposed clearing may be at variance to this Principle. The impact of the proposed clearing on two populations of *Acacia glaucocaesia* is unlikely to affect the conservation of this species due to the amount of available habitat within the Woodie Woodie tenements for *Acacia glaucocaesia* as well as the number of records of this species occurring within the local area, including the two remaining populations within the application area.

**Methodology** DEC (2009)  
Matiske Consulting (2007)  
Matiske Consulting (2008)  
MBS Environmental (2009)

**(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 Threatened Ecological Communities (TEC's) within the area applied to clear or within 100 kilometres of the application areas (GIS Database).

MBS Environmental (2009) report that no TEC's were identified during the flora and vegetation survey of the application areas.

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

**Methodology** MBS Environmental (2009)  
GIS Database  
- Threatened Ecological Communities

**(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.**

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

The application areas fall within the IBRA Pilbara Bioregion (GIS Database). Shepherd et al. (2001) report that approximately 99.9% of the pre-European vegetation still exists in this Bioregion (see table below). The vegetation within the application areas is recorded as the following two Beard Vegetation Associations (GIS Database):

- **Vegetation Association 173:** Hummock grasslands, shrub steppe, Kanji over soft spinifex and *Triodia wiseana* on basalt; and
- **Vegetation Association 177:** Hummock grasslands, sparse shrub steppe; *Acacia bivenosa* over hard spinifex *Triodia brizoides*.

According to Shepherd et al. (2001) approximately 100% of both of these vegetation associations remain within the Bioregion (see table below).

Therefore, the vegetation within the application areas is not a significant remnant of native vegetation within an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,164	17,794,651	~99.9	Least Concern	6.3
<b>Beard veg assoc. – State</b>					
173	1,753,116	1,753,116	~100	Least Concern	7.5
177	169,446	169,446	~100	Least Concern	0.0
<b>Beard veg assoc. – Bioregion</b>					
173	1,752,533	1,752,533	~100	Least Concern	7.5
177	169,446	169,446	~100	Least Concern	0.0

\* Shepherd et al. (2001) updated 2005

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

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

**Methodology** Shepherd et al. (2001)  
 Department of Natural Resources and Environment (2002)  
 GIS Database  
 - Interim Biogeographic Regionalisation for Australia  
 - Pre-European Vegetation

**(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.**

**Comments Proposal is at variance to this Principle**

The application areas contain several ephemeral drainage lines (GIS Database). MBS Environmental (2009) has reported two vegetation units within the application areas that are generally associated with watercourses:

- 1) Scrub or Thicket of *Carissa lanceolata*, *Petalostylis labicheoides*, *Acacia bivenosa* and *Acacia ancistrocarpa* over *Triodia pungens*, *Triodia basedowii*, *Cenchrus ciliaris* and *Chrysopogon fallax* along minor watercourses.
- 2) Scrub or Low Shrubland of *Acacia ancistrocarpa*, *Acacia arida*, *Acacia acradenia*, *Petalostylis labicheoides*, *Gossypium australe*, *Acacia synchronicia* and *Acacia inaequilatera* over *Triodia longiceps* and *Triodia wiseana* with patches of *Cenchrus ciliaris* on flats, often associated with major watercourses.

These vegetation units are distributed as follows (MBS Environmental, 2009):

Vegetation Unit	Total Area Mapped (hectares)	Total Area within Clearing Permit Application Areas (hectares)
<b>Vegetation Unit 1</b>	540.72	40.46
<b>Vegetation Unit 2</b>	1,107.13	31.28

MBS Environmental (2009) report that based on preliminary designs approximately 20 hectares of Vegetation Unit 1 will be impacted on by the proposed clearing, which equates to less than 4% of the mapped extent of this community. Based on the above table, less than 3% of Vegetation Unit 2 occurs within the application areas. It is therefore not expected that the proposed clearing will significantly impact on the overall representation of these vegetation units in the local area.

A small area of sedgeland habitat has developed at the northern end of the application areas as a result of dewatering discharge from the pit since 1996 (MBS Environmental, 2009). This habitat is not permanent as the area will dry out on completion of dewatering (MBS Environmental, 2009).

Based on the above, the proposed clearing is at variance to this Principle. However, vegetation associated with watercourses is well represented throughout the Woodie Woodie region. Therefore the proposed clearing associated with watercourses is unlikely to have a significant impact on any watercourse or wetland.

Should a clearing permit be granted, it is recommended that the proponent should liaise with the Department of Water to determine whether a Bed and Banks permit is necessary for the proposed works.

**Methodology** MBS Environmental (2009)  
GIS Database  
- Hydrography, linear

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

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

The application areas have been mapped as occurring within the Coonigmah and Paterson Land Systems (GIS Database).

The Coonigmah Land System consists of plateau surfaces, low hills with steep slopes and undulating uplands supporting hard spinifex grasslands (Van Vreeswyk et al., 2004). This land system is considered to have a very low erosion risk and the vegetation is not susceptible to degradation (Van Vreeswyk et al., 2004).

The Paterson Land System consists of stony and sandy plains with isolated low hills of sandstone or conglomerate supporting hard spinifex (and occasionally soft spinifex) grasslands and minor tussock grasslands (Van Vreeswyk et al., 2004). This system is generally not prone to erosion except for alluvial plains and some drainage floors which are moderately susceptible if vegetative cover is depleted (Van Vreeswyk et al., 2004).

MBS Environmental (2009) has listed potential sources of land degradation from the proposed clearing:

- Wind erosion from topsoil stripping;
- Wind and water erosion of topsoil stockpiles;
- Wind and water erosion of rehabilitated surfaces e.g. waste rock stockpiles;
- Water erosion due to changes to the surface flow;
- Soil compaction;
- Soil contamination; and
- Introduction and/or spread of weeds.

MBS Environmental (2009) report that Pilbara Manganese will implement management strategies in order to minimise land degradation, which include:

- Minimising the area requiring vegetation removal;
- Confining vehicle movements to defined haul roads and tracks;
- Conducting topsoil-stripping activities during periods of low winds;
- Establishing vegetation on bare surfaces on completion of activities;
- Stockpiling topsoil for use in rehabilitation;
- Implementation of a weed management program;
- Progressive rehabilitation of completed surfaces to minimise active areas exposed; and
- Scarifying of compacted tracks prior to rehabilitation of the site.

Based on the above, the proposed clearing is not likely to be at variance to this Principle. It is recommended that should a permit be granted, conditions be imposed for the purposes of weed management and rehabilitation.

**Methodology** MBS Environmental (2009)  
Van Vreeswyk et al. (2004)  
GIS Database  
- Rangelands System Mapping

**(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.**

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

The proposed clearing is not located within close proximity to any conservation areas (GIS Database). The nearest Department of Environment and Conservation (DEC) managed land is the Rudall River National Park located approximately 85 kilometres south-east of the application areas (GIS Database).

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

**Methodology** GIS Database  
- CALM Managed Land and Waters

**(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.**

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

The application areas are located in an arid region with an annual average rainfall of approximately 327 millimetres falling mainly during the summer months (MBS Environmental, 2009). Based on an average annual evaporation rate of approximately 3,800 millimetres, any surface water resulting from rain events is expected to be relatively short-lived (MBS Environmental, 2009).

The application areas have numerous ephemeral drainage lines running through them (GIS Database). Based on the climate of the region these creeks are expected to be dry except following significant rainfall events which are typically associated with tropical cyclones.

The groundwater and surface water of the Woodie Woodie region is well documented with over ten years of monitoring data (MBS Environmental, 2009). The groundwater and surface water within the Woodie Woodie region has pH ranging between 7.2 and 8.5 and is generally fresh to brackish (MBS Environmental, 2009).

The natural water table is more than 20 metres below natural ground level (MBS Environmental, 2009). Therefore, the impact of vegetation removal on groundwater levels is not likely to be significant. In addition, due to the arid climate, surface water runoff is expected to be minimal except following significant rainfall. Hence the proposed clearing is unlikely to have any significant impact on surface water flows or groundwater quality.

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

**Methodology** MBS Environmental (2009)  
GIS Database  
- Hydrography, linear

**(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.**

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

The application areas are located in an arid region where the average annual evaporation rate greatly exceeds the average annual rainfall (MBS Environmental, 2009). There are no permanent watercourses within the application areas, however, numerous ephemeral drainage lines dissect the proposed clearing areas (GIS Database). These drainage lines are expected to be dry for most of the year, and would likely only flow briefly immediately following significant rainfall.

Natural flood events do occur in the Pilbara region following cyclonic activity. However, the proposed clearing is not expected to increase the incidence or intensity of such events given the size of the area to be cleared (300 hectares) in relation to the Oakover River catchment area (2,001,756 hectares) (GIS Database).

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

**Methodology** MBS Environmental (2009)  
GIS Database  
- Hydrographic Catchments - Catchments

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

**Comments**

There is one Native Title claim (WC99/008) over the area under application (GIS Database). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the tenements have 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*.

According to available databases there is one Aboriginal Site of Significance (site ID: 20824) within the application areas (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment 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.

There were no public submissions received during the public comment period.

**Methodology** GIS Database  
- Aboriginal Sites of Significance  
- Native Title Claims



## 4. Assessor's comments

### Comment

The proposal has been assessed against the Clearing Principles, and is at variance to Principle (f), may be at variance to Principle (c), is not likely to be at variance to Principles (a), (b), (d), (g), (h), (i) and (j) and is not at variance to Principle (e).

Should the permit be granted it is recommended that conditions be imposed on the permit for the purposes of weed management, rehabilitation, record keeping and permit reporting.

## 5. References

- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- Davis, R.A. and Wilcox, J.A. (2007) Woodie Woodie Project Area: Baseline Fauna Survey 2006/2007. Western Wildlife, Western Australia.
- DEC (2009) Florabase: the Western Australia Flora. Department of Environment and Conservation. Available online from: <http://florabase.calm.wa.gov.au/>. Accessed 26 March 2009.
- DECC (2005) Australian Bustard - profile. Department of Environment and Climate Change. Available online from: <http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10063>. Accessed 26 March, 2009.
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## 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>DMP</b>	Department of Mines and Petroleum, 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.