



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 2460/2  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Robe River Pty Ltd

### 1.3. Property details

Property: Iron Ore (Robe River) Agreement Act 1964, Special Lease for Mining Operations 3116/4627, Lot 54 on Deposited Plan 241547  
Local Government Area: Shire of Ashburton  
Colloquial name: Wandoo Housing Project

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
18		Mechanical Removal	Building and Construction of the Wandoo Housing Project

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 8 March 2012

## 2. Site Information

### 2.1. Existing environment and information

#### 2.1.1. Description of the native vegetation under application

**Vegetation Description** Vegetation within the application area has been mapped at a 1:250,000 scale as the following Beard vegetation association:

603: Hummock grasslands, sparse shrub steppe; *Acacia bivenosa* over hard spinifex (GIS Database).

The purpose permit application comprises of four separate project application areas. Biota Environmental Sciences were commissioned by Robe River to undertake a flora and vegetation assessment for the application areas in January 2008. Biota Environmental Services (2008) has described the vegetation types that were identified within each of the four project areas.

#### 1. Permanent Village:

(i) AiAaAbTw: *Acacia inaequilatera* scattered tall shrubs over *A. ancistrocarpa* and *A. bivenosa* open shrubland over *Triodia wiseana* hummock grassland.

(ii) Cleared: Areas currently cleared of vegetation, or historically cleared and extensively degraded by weeds.

#### 2. Construction Camp:

(i) AiAbTw: *Acacia inaequilatera* scattered tall shrubs over *A. bivenosa* scattered shrubs over *Triodia wiseana* hummock grassland.

(ii) Cleared: Areas currently cleared of vegetation, or historically cleared and extensively degraded by weeds.

#### 3. Service Station:

(i) AiAbTw: *Acacia inaequilatera* scattered tall shrubs over *A. bivenosa* scattered shrubs over *Triodia wiseana* hummock grassland.

(ii) Rehab areas: Rehabilitation areas.

(iii) Cleared: Areas currently cleared of vegetation, or historically cleared and extensively degraded by weeds.

#### 4. New Wastewater Infrastructure:

(i) AiTw: *Acacia inaequilatera* scattered tall shrubs over *Triodia wiseana* hummock grassland.

(ii) EcCEC: *Eucalyptus camaldulensis* low woodland over *Cenchrus ciliaris* tussock grassland.

(iii) AtrVf: *Acacia trachycarpa*, *Vachellia farnesiana* scattered tall shrubs.

(iv) Cv: *Cyperus vaginatus* closed sedgeland.

(v) Cleared: Areas currently cleared of vegetation, or historically cleared and extensively degraded by weeds.



<b>Clearing Description</b>	<p>Robe River Pty Ltd has applied to clear up to 18 hectares of native vegetation for the construction of buildings and infrastructure for the Pannawonica town site. The clearing application area involves four project areas that are located within the Pannawonica town site on Lease 3116/4627. The proposed clearing under this clearing application is for the construction of a permanent village, construction camp, service station and waste water treatment plant.</p> <p>Vegetation will be cleared by a bulldozer with its blade down. All vegetative material and topsoil from cleared areas will be collected and stockpiled and used for future rehabilitation purposes (Robe River, 2008).</p>
<b>Vegetation Condition</b>	<p>Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994); To: Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).</p>
<b>Comment</b>	<p>The vegetation condition was assessed by Biota Environmental Services (2008). Biota Environmental Services (2008) made the following comments in relation to the vegetation condition within each of the project areas.</p> <p><b>1. Permanent Village:</b> Vegetation in the vicinity of the existing buildings and other structures in the eastern section of the Permanent Village area was degraded, being largely cleared and with large numbers of weeds. Numerous ornamental species have also been planted in this area. Vegetation unit AiAaAbTw of the western section of the Permanent Village area was more intact but still showed some signs of physical disturbance; it was only considered to be in Good condition.</p> <p><b>2. Construction Camp:</b> This vegetation was generally in Very Good to Excellent condition, apart from the historically cleared areas in the vicinity of the existing shed and laydown areas, which showed signs of physical disturbance and also had scattered weeds.</p> <p><b>3. Service Station:</b> Overall the condition of the Service Station area was rated as Poor due to the high level of weed infestation through the area, with only the small areas of intact vegetation unit AiAbTw ranked as Very Good. There were also signs of cattle grazing in the area.</p> <p><b>4. New Wastewater Infrastructure:</b> The areas in the vicinity of the existing sewage farm were degraded, being historically cleared and infested with weeds as a result of the damp and nutrient-rich conditions. There were also signs of grazing and trampling by cattle through these areas. The more intact native vegetation unit AiTw at the northern and southern edges of the New Wastewater Infrastructure area and along the eastern 600 metres of the Pannawonica Road was in Very Good condition, with scattered patches of weeds comprising the main disturbance.</p> <p>A site inspection of the application area was undertaken by the Assessing Officer on 30 January 2008.</p> <p>Clearing permit CPS 2460/1 was granted by the Department of Industry and Resources (now Department of Mines and Petroleum (DMP)) on 19 June 2008 and was valid from 19 July 2008 to 31 July 2012. The clearing permit authorised the clearing of 18 hectares of native vegetation. An application to amend the permit was received by DMP on 25 January 2012. Robe River has applied to extend the duration of the clearing permit for an additional five years to allow the clearing to be completed. A further five years has been added to the duration of this permit to allow for the rehabilitation to be implemented. The amount of clearing authorised and the clearing permit boundary remain the same as approved under clearing permit CPS 2460/1.</p>

### 3. Assessment of application against clearing principles

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

<b>Comments</b>	<p><b>Proposal is not likely to be at variance to this Principle</b></p> <p>The application area occurs within the Chichester (PIL1) subregion of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is characterised by plains supporting a shrub steppe characterised by <i>Acacia inaequilatera</i> over <i>Triodia wiseana</i> hummock grasslands, while <i>Eucalyptus leucophloia</i> tree steppes occur on ranges (CALM, 2002). The vegetation within the application area consists of Beard vegetation association 603, which is common and widespread throughout the Pilbara bioregion with approximately 100% of the pre-European vegetation extent remaining (Shepherd, 2009; GIS Database).</p> <p>Biota Environmental Services (2008) have surveyed the area under application and identified a total of seven vegetation types. None of the vegetation types that have been identified within the application area were of particular local or regional significance and all were relatively common for the Pannawonica locality (Biota Environmental Services, 2008). A total of 87 native flora species, from 52 genera and belonging to 28 families were identified within application area (Biota Environmental Services, 2008). None of the vegetation types that were identified were particularly rich in native flora species (Biota Environmental Services, 2008). The total number of species identified within the application area is not considered to represent an area of high species richness (Biota Environmental Services, 2008).</p>
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The application area is located within the Pannawonica town site on Lease 3116/4627 (Robe River, 2008). Pannawonica town site was built by Robe River Iron Associates in 1971-72 as a service centre for the mines which are located near to the town, and as a result the town site and surrounding areas have been subject to a considerable degree of disturbance over a long period of time (Biota Environmental Services, 2008). Biota Environmental Services (2008) noted that the vegetation condition of the Permanent Village, Service Station and New Wastewater Infrastructure project areas ranged from predominately Degraded to Poor as the areas were either largely cleared or infested with weeds. A small western section of the Permanent Village area was more intact but still showed some signs of physical disturbance and was considered to be in Good condition, whilst the northern and southern edges of the New Wastewater Infrastructure area and along the eastern 600 metres of the Pannawonica Road was in Very Good condition, with scattered patches of weeds comprising the main disturbance (Biota Environmental Services, 2008).

A total of nine weed species were recorded within the Wandoo Housing Project application area and these were Kapok (*Aerva javanica*), Buffel Grass (*Cenchrus ciliaris*), Birdwood Grass (*Cenchrus setiger*), Colocynth (*Citrullus colocynthis*), Spiked Malvastrum (*Malvastrum americanum*), Basil (*Ocimum basilicum*), Coffee Senna (*Senna occidentalis*), Caltrop (*Tribulus terrestris*) and Mimosa Bush (*Vachellia farnesiana*) (Biota Environmental Services, 2008). A number of weed species were identified within each of the Wandoo Housing project areas (Biota Environmental Services, 2008). It is likely that the presence of weed species has adversely impacted on the biodiversity of the application area. The disturbance of soil is likely to promote weed growth, and there is a risk that the movement of soil and clearing equipment throughout and between the project areas may cause the spread of weed species. Potential impacts to the biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

The application area does not contain any significant landform features of the Pilbara region and Biota Environmental Services (2008) have confirmed that none of the vegetation and landform types that were identified within the application area were of local or regional significance. The application area has been subject to a considerable degree of disturbance which is likely to have impacted on the biodiversity of the area. Biota Environmental Services (2008) indicated that the application area is largely cleared or infested with weeds, and this was confirmed during a site visit to the application area by the Assessing Officer on 30 January 2008. Due to the disturbance that has occurred, the vegetation of the application area is unlikely to be considered as an area of outstanding biodiversity.

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

**Methodology** Biota Environmental Services (2008)  
CALM (2002)  
Robe River (2008)  
Shepherd (2009)  
GIS Database:  
- IBRA WA (Regions - Subregions)  
- Pre-European Vegetation

**(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.**

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

A fauna habitat assessment of the application area was undertaken in conjunction with the flora and vegetation survey by Biota Environmental Services (Biota Environmental Services, 2008). In order to identify species habitat that may potentially occur within the application area, Biota Environmental Services carried out a search of the Western Australian Museum and Department of Environment and Conservation databases to identify Schedule and Priority listed fauna that may occur within a 50 kilometre radius from Pannawonica. A search of the *Environmental Protection and Biodiversity Conservation Act 1999* database was also conducted (Biota Environmental Services, 2008).

Biota Environmental Services (2008) identified one common fauna habitat across the application area - Stony Undulating Plain: Mixed *Acacia* scattered to open shrubland over *Triodia wiseana* (occasionally *T. epactia*) hummock grassland.

Stony undulating plains are common in the Pannawonica locality (Biota Environmental Services, 2008). Such areas typically support a sparse to open cover of mixed wattles, particularly *Acacia inaequilatera*, *A. ancistrocarpa*, *A. atkinsiana*, *A. bivenosa* and occasionally *A. orthocarpa*, over a hummock grassland of hard spinifex (*Triodia wiseana*) or sometimes soft spinifex (*Triodia epactia*) (Biota Environmental Services, 2008). The substrate comprises a clay-loam to loam with a pebbly to stony surface (Biota Environmental Services, 2008). Such areas tend not to have particularly high avian species richness due to the lack of a dense shrub or tree overstorey, but may support numerous species of other vertebrates (Biota Environmental Services, 2008).

A small stand of *Eucalyptus camaldulensis* low woodland over *Cenchrus ciliaris* tussock grassland was identified at the eastern edge of the proposed New Wastewater Infrastructure area, along with a minor flow line of *Acacia trachycarpa* and *Vachellia farnesiana*, with dense *Cyperus vaginatus* sedges along the outflow channel (Biota Environmental Services, 2008). *Eucalyptus camaldulensis* of suitable age may form hollows of



sufficient size to provide habitat to a variety of avian fauna species. The Pannawonica town site was built by Robe River Iron Associates in 1971-72. It is likely that this creekline and associated vegetation has been artificially created since the advent of the Pannawonica town site wastewater treatment facility (Biota Environmental Services, 2008). As a result, the *Eucalyptus camaldulensis* trees that were identified by Biota Environmental Services are unlikely to be of sufficient age to have formed hollows that are of suitable size to provide fauna habitat.

It was observed during a site visit to the application area by the Assessing Officer that the diversity of landforms within the application area is low in terms of ranges, ridges, outcrops or caves suitable to provide habitat for fauna. Biota Environmental Services (2008) have indicated that the application area is largely cleared or infested with weeds, and this was confirmed during the site visit to the application area by the Assessing Officer. The application area has been subject to a considerable degree of disturbance which is likely to have reduced the habitat value for the area. The vegetation and habitats that have been identified and described for the application area are typical of the Pannawonica locality (Biota Environmental Services, 2008). Due to the level of disturbance that has occurred around the Pannawonica town site, it would be considered likely that higher quality vegetation and fauna habitat would exist throughout the surrounding Pannawonica locality and Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) region.

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

**Methodology** Biota Environmental Services (2008)

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

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

According to available datasets, there are no known records of Declared Rare Flora (DRF) or Priority flora species within the clearing application area (GIS Database).

A DRF and Priority Flora survey was undertaken by botanists from Biota Environmental Services on 8 February 2008. No DRF or Priority Flora species were recorded within the application area during the survey (Biota Environmental Services, 2008). The proposed clearing is unlikely to impact on any DRF or Priority flora species.

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

**Methodology** Biota Environmental Services (2008)  
GIS Database:  
- Threatened and Priority Flora

**(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.**

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

There are no known Threatened Ecological Communities (TECs) within the application area (Biota Environmental Services, 2008; GIS Database). The nearest known TEC is located approximately 112 kilometres south-east of the application area (GIS Database). Given the distance between the application area and the nearest known TEC, the proposed clearing is unlikely to impact on the conservation of the TEC.

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

**Methodology** Biota Environmental Services (2008)  
GIS Database:  
- Threatened Ecological Sites Buffered

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

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

The application area falls within the Pilbara IBRA bioregion (GIS Database). The vegetation within the application area is recorded as Beard vegetation association 603: Hummock grasslands, sparse shrub steppe; *Acacia bivenosa* over hard spinifex (GIS Database; Shepherd, 2009).

According to Shepherd (2009), Beard vegetation association 603 retains approximately 100% of its pre-European extent. Therefore, the area proposed to be cleared is not a significant remnant of native vegetation in 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	17,804,193	17,785,001	~99.89	Least Concern	6.32
Beard Vegetation Associations - State					
603	388,455	388,455	~100	Least Concern	16.14
Beard Vegetation Associations - Bioregion					
603	388,455	388,455	~100	Least Concern	16.14

\* Shepherd (2009)

\*\* 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 (2009)  
GIS Database:  
- IBRA WA (Regions - Subregions)  
- 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 not likely to be at variance to this Principle**

There are no permanent naturally occurring wetlands or watercourses within the application area (GIS Database), and Biota Environmental Services (2008) has advised that the vegetation to be cleared is not associated with any naturally occurring watercourses, wetlands or wetland dependent vegetation. A site visit to the application area by the Assessing Officer has confirmed that the proposed clearing will have no impact on any naturally occurring wetland or watercourse.

The only creekline of note occurs through the central section of the New Wastewater Infrastructure area. A small stand of *Eucalyptus camaldulensis* low woodland over *Cenchrus ciliaris* tussock grassland was identified at the eastern edge of the proposed New Wastewater Infrastructure area, along with minor flow line of *Acacia trachycarpa* and *Vachellia farnesiana*, with dense *Cyperus vaginatus* sedges along the outflow channel (Biota Environmental Services, 2008). It is likely that this creekline and vegetation has been artificially created since the advent of the Pannawonica town site wastewater treatment facility (Biota Environmental Services, 2008). This creekline contains an abundance of weed species and artificially promoted wetland vegetation, and as a result the vegetation is considered to be extensively degraded (Biota Environmental Services, 2008).

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

**Methodology** Biota Environmental Services (2008)  
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**

According to the Department of Agriculture in Technical Bulletin No. 92 "An inventory and condition survey of the rangelands of the Pilbara Region, Western Australia", the application area is comprised of the Rocklea Land System (Van Vreeswyk et al., 2004).

The Rocklea Land System is characterised by basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex (and occasionally soft spinifex) grasslands. Landform units within the Rocklea Land System comprise:

- Hills, ridges, plateaux and upper slopes;
- Lower slopes;
- Stony plains and interfluves;
- Gilgai plains;
- Upper drainage lines; and



- Drainage floors and channels (Van Vreeswyk et al., 2004).

Biota Environmental Services (2008) indicate that the application area is located the landform unit Stony plains and interfluves which has been described by Van Vreeswyk et al. (2004) as gently undulating to undulating plains, interfluves and low rises up to 1.5 kilometres in extent, surface mantles of abundant to very abundant pebbles and cobbles of basalt and occasionally shale and other rocks. The soils consist of calcareous shallow loams, red sandy earths and shallow red/brown non-cracking clays (Van Vreeswyk et al., 2004). This land system has a very low erosion risk (Van Vreeswyk et al., 2004). A site visit to the application area was undertaken by the Assessing Officer on 30 January 2008 and there was no evidence of wind or water erosion within the application area. Robe River proposes to clear up to 18 hectares within a purpose permit application area of approximately 37 hectares for the purpose of constructing buildings and associated infrastructure (Robe River, 2008). The proposed clearing may expose surface mantles which may cause an increase in surface water runoff, however, given the stony nature of the surface materials, water and/or wind erosion is unlikely to occur.

Groundwater salinities have been measured in the range from 500 to 1,000 milligrams/litre Total Dissolved Solids (TDS) (GIS Database). The application area is located at Pannawonica which experiences mean annual rainfall of 400.9 millimetres and mean annual evaporation of approximately 3,400 millimetres (BoM, 2008; GIS Database). Due to the low rainfall to high evaporation ratio, it is likely that the majority of groundwater recharge would occur following significant rainfall events. It is unlikely that the proposed clearing will significantly increase groundwater recharge, or that land salinisation will be increased either on or off-site.

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

**Methodology** Biota Environmental Services (2008)  
Robe River (2008)  
Van Vreeswyk et al. (2004)  
GIS Database:  
- Evaporation Isoleths  
- Groundwater Salinity, Statewide

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

**Comments** **Proposal is not likely to be at variance to this Principle**  
The application area is not located within a Department of Environment and Conservation managed conservation area (GIS Database). The nearest conservation area is Cane River Conservation Park which is situated approximately 60 kilometres south-west of the application area (Biota Environmental Services, 2008; GIS Database). Based on the distance between the proposal and the nearest conservation area, the proposed clearing is not likely to impact on the conservation values of Cane River Conservation Park.

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

**Methodology** Biota Environmental Services (2008)  
GIS Database:  
- DEC Tenure

**(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 naturally occurring watercourses, drainage systems or wetlands within the application area (Biota Environmental Services, 2008; GIS Database). The land system associated with the application area has high resistance to erosion (Van Vreeswyk et al., 2004), thereby reducing the risk of sediment export which may result in sedimentation and turbidity in nearby watercourses. The proposed clearing is unlikely to cause deterioration in the quality of surface water in the local area.

The application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The nearest PDWSA is the Millstream Water Reserve which is located approximately 52 kilometres east from the application area (GIS Database). Given the distance separating the application area and the nearest water supply area, the proposed clearing is unlikely to impact on the quality of the Millstream Water Reserve.

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

**Methodology** Biota Environmental Services (2008)  
Van Vreeswyk et al. (2004)  
GIS Database:  
- Hydrography, Linear  
- Public Drinking Water Source Areas (PDWSAs)



**(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 area is not associated with any permanent wetlands or watercourses (GIS Database). The average annual rainfall of the application area is 400.9 millimetres and BoM (2008) indicates that the Pannawonica locality receives majority of the rainfall between December and March. As a result, local flooding can be expected to occur seasonally in the Pilbara region as a result of heavy rainfall triggered by cyclonic activity and sporadic thunderstorms (Biota Environmental Services, 2008).

Numerous ephemeral watercourses are distributed across the landscape, and these are responsible for quickly dispersing floodwaters after significant rainfall events, thereby reducing peak flood heights (GIS Database). The Assessing Officer undertook a site visit to the application area on 30 January 2008 and observed that a considerable portion of the vegetation within the application area is subject to a significant degree of disturbance. The application area is largely cleared or covered by town or mine associated infrastructure (Biota Environmental Services, 2008). It is unlikely that the additional clearing required under this proposal will impact on drainage patterns in the Pannawonica locality.

The proposed clearing of native vegetation for the Wandoo Housing Project is unlikely to cause or increase the incidence of flooding or result in an increase in peak flood height.

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

**Methodology** Biota Environmental Services (2008)  
BoM (2008)  
GIS Database:  
- Hydrography, Linear

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

**Comments**

There are no Native Title claims over the area under application. The mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (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 is one registered Aboriginal Site of Significance adjacent to the application area (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.

Clearing permit CPS 2460/1 was granted by the Department of Industry and Resources (now Department of Mines and Petroleum (DMP)) on 19 June 2008 and was valid from 19 July 2008 to 31 July 2012. The clearing permit authorised the clearing of 18 hectares of native vegetation. An application to amend the permit was received by DMP on 25 January 2012. Robe River has applied to extend the duration of the clearing permit for an additional five years to allow the clearing to be completed. A further five years has been added to the duration of this permit to allow for the rehabilitation to be implemented. The amount of clearing authorised and the clearing permit boundary remain the same as approved under clearing permit CPS 2460/1.

**Methodology** GIS Database:  
- Aboriginal Sites of Significance  
- Native Title Claims – Determined by the Federal Court  
- Native Title Claims – Filed at the Federal Court  
- Native Title Claims – Registered with the NNTT

**4. References**

- Biota Environmental Services (2008) Wandoo Housing Project Native Vegetation Clearing Report. Report Prepared for Robe River Iron Associates by Biota Environmental Sciences, March 2008.
- BoM (2008) Climate Statistics for Australian Locations. A Search for Climate Statistics for Kalgoorlie-Boulder, Australian Government Bureau of Meteorology, viewed 30 May 2008.
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Pilbara 1 (PIL1 – Chichester Subregion). Department of Conservation and Land Management, Western Australia.
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.



- Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Robe River (2008) *Documentation Accompanying Clearing Permit Application for CPS 2460/1*. Prepared by Robe River Pty Ltd, April 2008.
- Shepherd, D.P. (2009) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), *Native Vegetation in Western Australia*. Technical Report 249. Department of Agriculture Western Australia, South Perth.
- Van Vreeswyk A.M.E., Payne A.L., Leighton K.A. and Hennig P. (2004) *Technical Bulletin - An inventory and condition survey of rangelands in Pilbara Region, Western Australia, No. 92*, Department of Agriculture, Government of Western Australia, Perth, Western Australia.

## 5. Glossary

### Acronyms:

BoM	Bureau of Meteorology, Australian Government
CALM	Department of Conservation and Land Management (now DEC), Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DEC), Western Australia
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DoE	Department of Environment (now DEC), Western Australia
DoIR	Department of Industry and Resources (now DMP), Western Australia
DOLA	Department of Land Administration, Western Australia
DoW	Department of Water
EP Act	Environmental Protection Act 1986, Western Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
RIWI Act	Rights in Water and Irrigation Act 1914, Western Australia
s.17	Section 17 of the Environment Protection Act 1986, Western Australia
TEC	Threatened Ecological Community

### 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.



