



1. Application details

1.1. Permit application details

Permit application No.: 2589/1
 Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: BHP Billiton Iron Ore Pty Ltd

1.3. Property details

Property: LOT 136 ON PLAN 48924 (MARBLE BAR 6760)
 LOT 136 ON PLAN 48924 (MARBLE BAR 6760)
 LOT 136 ON PLAN 48924 (MARBLE BAR 6760)
 LOT 136 ON PLAN 48924 (MARBLE BAR 6760)
 LOT 136 ON PLAN 48924 (MARBLE BAR 6760)
 LOT 136 ON PLAN 48924 (MARBLE BAR 6760)
 LOT 136 ON PLAN 48924 (MARBLE BAR 6760)
 LOT 136 ON PLAN 48924 (MARBLE BAR 6760)
 LOT 136 ON PLAN 48924 (MARBLE BAR 6760)
 LOT 136 ON PLAN 48924 (MARBLE BAR 6760)

Local Government Area: Town Of Port Hedland
 Colloquial name: Iron Ore (Mount Newman) Agreement Act 1964, Special Lease for Mining Operations, Lease No 3116/6068, Document No I 150309 L(Lot 136 on Deposited Plan 48924)

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
70		Mechanical Removal	Building or Structure

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
Beard vegetation associations have been mapped at a 1:250,000 scale for the whole of Western Australia, and are a useful tool to examine the vegetation extent in a regional context. One Beard vegetation association is located within the application area (GIS Database): 93; Hummock grasslands, shrub steppe; kanji over soft Spinifex.	BHP Billiton Iron Ore Pty Ltd (hereafter referred to as BHP Billiton) have applied to clear up to 70 hectares of native vegetation within a purpose permit boundary of approximately 221 hectares. The project involves an extension to the existing Turner Camp to allow for the accommodation of up to 300 additional personnel (BHP Billiton, 2008).	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	BHP Billiton commissioned ENV (2008a; 2008c) to conduct two flora surveys of the application area in 2006 and 2008. Based on these surveys the vegetation condition was derived. During a flora survey conducted by ENV (2008c) four weed species were recorded within the application area; Tamarix aphylla (Athe! Tree), Cenchrus ciliaris (Buffel Grass), Phoenix dactylifera (Date Palm) and Aerva javanica (Kapok Bush). ENV (2008a) reported that the vegetation surrounding the existing camp within the application area is completely disturbed
ENV Australia Pty Ltd (hereafter referred to as ENV) conducted a Declared Rare and Priority flora survey of a 400 hectare area surrounding the application area in November 2006. Further to this, ENV conducted a Level One survey in February 2008 of the vascular flora within a 15 hectare area that includes the location for the proposed Turner Camp	Turner Camp is located approximately 120 kilometres south of Port Hedland, adjacent to the Newman to Port Hedland railway line within the Iron Ore (Mount Newman) Agreement Act 1964, lease area (BHP Billiton, 2008). Clearing methods are proposed to be mechanical raised and lowered blade clearing (BHP Billiton, 2008)		

extension (ENV, 2008a; 2008c). From these surveys the following vegetation associations were identified;

- Minor Drainage Lines; *Corymbia hamersleyana* over *Acacia trachycarpa* over *Chrysopogon fallax* and *Triodia epactia*;
- Drainage Plain; *Acacia inaequilatera* and *A. bivenosa* and *A. stellaticeps* over *Triodia longiceps*;
- Sandy Loam Plain; *Corymbia hamersleyana* over *Acacia inaequilatera* and *A. bivenosa* over *Triodia longiceps*;
- Dolerite Rockpile; *Grevillea wickhamii* and *Acacia inaequilatera* over *Cenchrus ciliaris*; and
- Granite Outcrop; *Acacia inaequilatera* and *A. orthocarpa* over *Triodia longiceps* and *T. epactia*.

The project will comprise the following elements: accommodation facilities, camp facilities, waste water treatment plant and treated effluent disposal system, office facilities, maintenance compound, fuel storage, access tracks, lay down areas, car parks, borrow pits, water bore construction, topsoil stockpiles and drainage controls (BHP Billiton, 2008).

Completely Degraded:
No longer intact;
completely/almost
completely without
native species
(Keighery 1994)

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 proposed clearing is for 70 ha within a 220 ha area for the purpose of a railway accommodation camp and associated infrastructure, railway construction and maintenance and associated works.

The application area is situated in the Chichester sub-region (PIL-1) of the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). Kendrick and McKenzie (2001) describe the biogeography of the sub-region as; undulating Archaean granite and basalt plains which include significant areas of basaltic ranges. Plains support a shrub steppe characterised by *Acacia inaequilatera* over *Triodia wiseana* hummock grasslands, while *Eucalyptus leucopholia* tree steppes occur on Ranges.

ENV (2008a) was commissioned in February 2008, by BHP Billiton to undertake a flora and vegetation assessment of a 15 hectare area over the location for the proposed Turner Camp extension within the application area. Further to this, ENV (2008c) conducted a Rare and Priority flora survey in November 2006 over a 400 hectare area surrounding the application area. These surveys identified five main vegetation units delimited by several different landforms including undulating rocky plains with mixed gravels, granite and calcrete outcrops (ENV, 2008c).

The November 2006 flora survey conducted by ENV (2008c) identified 105 plant species across 27 families over the survey area. ENV (2008c) considered this a large number of plant species given the small survey area. Although a high number of plant species was recorded, the survey area encompassed a major drainage line (ENV, 2008c) which has been excised from the application area. This may have accounted for the high number of plant species recorded within the survey area as drainage lines within the Pilbara support floristically diverse and structurally complex plant communities (Start et al., 1980).

In a follow up survey conducted by ENV (2008a) in 2008, lower species diversity was recorded. This survey was conducted within the application area where the infrastructure for the proposed camp would be located. Most of the survey area was in Poor, Very Poor or Completely Degraded condition, with small areas of vegetation in Good condition in the south-eastern corner and northern quarter of the site. This survey area did not encompass any major drainage lines and a total of 41 plant species across 21 families were identified. The average floral species richness per quadrat during the survey was 11.6 species. Based on the average number of flora taxa recorded per quadrat, the survey area displays a low level of plant species richness (ENV, 2008a).

During both flora and vegetation surveys (ENV, 2008a; 2008c), no Rare or Priority flora species were recorded in the vicinity, or within the application area.

One declared weed (*Tamarix aphylla*) listed under the Agricultural and Related Resources Protection Act 1976, and three other environmental weeds (*Cenchrus ciliaris*, *Phoenix dactylifera* and *Aerva javanica*) were recorded in the Project area (ENV, 2008a and ENV, 2008c).

Tamarix aphylla (Athel Pine) is listed as a Declared Plant in Western Australia by the Agriculture Protection Board (BHP Billiton, 2008a). Landowners are legally required to control Declared Plants on their properties. This species is listed as level P1, which prohibits the movement of plants or their seeds in the state (ENV, 2008c). *Tamarix aphylla* is fire resistant, and can out-compete native plant species by consuming available water, and increasing soil salinity by depositing foliage containing stored salts (Department of Environment and Heritage, 2003 cited in BHP Billiton 2008a). *Tamarix aphylla* was not common within the application area covering about 1 percent of the area and was only found in highly disturbed locations where historical camp facilities were positioned (ENV, 2008c).

Cenchrus ciliaris (Buffel Grass) was the most common weed in the application area covering approximately 15 percent of the area. It was particularly common (though not dominant) in the lower drainage areas, and present in sparse stands on the quartz stony plains, sandplains and other slightly more elevated areas of the site. The most serious of the infestations of this weed occurred at the site where the previous line camp was situated.

Phoenix dactylifera (Date Palm) and *Aerva javanica* (Kapok Bush) were present within the application area, however, they were not common. These species were only found in the highly disturbed location where the historical camp site was located.

Due to the presence of highly invasive weeds in the application area, a condition pertaining to weed management will be placed on the permit.

Based on a Department of Environment and Conservation database search, unpublished reports and a habitat review of the site, 25 species of conservation significant fauna comprising of 15 rare fauna (eight mammals, six birds and one reptile) and 10 migratory bird species have the potential to occur within the application area (Ecologia, 2008; ENV, 2008b). This would indicate the area has the potential to harbour high fauna diversity.

However, during ground surveys conducted by ENV (2008b) and Ecologia (2008) only one species of conservation significant fauna was observed in the application area (Bush stone-curlew - *Burhinus grallarius*) (Ecologia, 2008). Secondary evidence was used to identify a high likelihood of the Australian Bustard - *Ardeotis australis* and the Western Pebble-mound Mouse - *Pseudomys chapmani* also occurring within the application area (Ecologia, 2008). All three species are listed as Priority 4 by the DEC.

The number of conservation significant fauna species recorded is low in comparison to other areas of the Pilbara (Ecologia, 2008). The application area has suffered previous disturbance from railway construction and maintenance activities, grazing, and weed invasion.

In addition to the above, nine introduced mammals from six families potentially occur in the Turner River Camp area (Ecologia, 2008). These are the House Mouse (*Mus musculus*), Black Rat (*Rattus rattus*), Red Fox (*Vulpes vulpes*), Cat (*Felis catus*), Donkey (*Equus asinus*), Brumby (*Equus caballus*), Pig (*Sus scroga*), Camel (*Camelus dromedarius*) and European Cattle (*Bos Taurus*). Introduced mammals may have also contributed to a reduction in fauna biodiversity through predation and competition.

Aerial photography suggests that the local area (20 km radius) appears to be almost 100% vegetated.

Due to the weed disturbance within the application area, reducing the condition of the vegetation, and the highly vegetated local area, the proposed clearing is not considered to constitute a high level of biodiversity and is not likely to be at variance to this Principle.

Methodology

BHP Billiton (2008a)
DAFWA (2008)
Ecologia (2008)
ENV (2008a)
ENV (2008c)
Kendrick and McKenzie (2001)
Start et al. (1980)

GIS Database
- Interim Biogeographic Regionalisation for Australia
- Wodgina 1.4m Orthomosaic - Landgate 2001

(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

Two fauna surveys were conducted over the application area.

The first survey was a Level 1 vertebrate fauna assessment conducted by ENV (2008b) in February 2008, covering a 15 hectare area over the location for the proposed Turner Camp extension.

The second survey was a Level 1 vertebrate fauna assessment conducted by Ecologia (2008) in April 2008, covering a 400 hectare area encompassing the application area.

Prior to conducting ground surveys, Ecologia (2008) and ENV (2008b) conducted two separate desktop assessments to ascertain the likelihood of conservation significant fauna occurring in the application area. Based on a Department of Environment and Conservation database search, unpublished reports and a habitat review of the site, 25 species of conservation significant fauna consisting of 15 rare fauna (eight mammals, six birds and one reptile) and 10 migratory bird species have the potential to occur within the application area (Ecologia, 2008; ENV, 2008b).

To follow up the database searches and literature reviews ground surveys were conducted by ENV (2008b) and Ecologia (2008). These surveys recorded one species of conservation significant fauna (Bush stone-curlew - *Burhinus grallarius*), which was observed in the application area (Ecologia, 2008). Secondary evidence was used to identify a high likelihood of the Australian Bustard - *Ardeotis australis* and the Pebble-Mound Mouse - *Pseudomys chapmani* also occurring within the application area (Ecologia, 2008). All three species are listed as Priority 4 by the DEC and are discussed below.

The Bush Stone-curlew (a bird, listed as Priority 4 with the DEC), is distributed across northern, eastern and Western Australia as well as some off shore islands (DEWHA, 2008). It is usually found in lightly wooded country with thickets or long grass providing daytime shelter. In Western Australia, it is fairly common north of the northern limit (80 mile beach) of the introduced Red Fox (*Vulpes vulpes*), and rarer to locally extinct south of the limit (Ecologia, 2008). A flock of three individuals were recorded landing near the southern boundary of the application area. Suitable habitat does occur within the application area for this species. However, given the widespread distribution of this species, and its ability to utilise a wide variety of habitats, the clearing of 70 hectares of vegetation within the application area is not likely to impact significant habitat for this species.

The Western Pebble-mound Mouse (DEC - Priority 4) constructs pebble mounds on slopes composed of stony soils (Start et al., 1980). Mounds are generally several metres in diameter and built in vegetation dominated by hard spinifex (*Triodia basedowii* or *T. wiseana*) (Start et al, 1980). One very old pebble mound was recorded in close proximity to the application area (Ecologia, 2008). The vegetation within the application area is of a type that may support populations of the Western Pebble-mound Mouse. However, given the widespread distribution in the Pilbara of suitable habitat for this species and its abundance in at least five large conservation reserves found in the Pilbara (Start et al., 1980), the vegetation within the application area is unlikely to represent significant habitat for this species.

The Australian Bustard (DEC - Priority 4) is limited to the arid areas of Northern and Central Australia (Caughley et al., 1986). It is found in tussock grasslands, *Triodia* hummock grassland, grassy woodland and low shrublands (Garnett & Crowley, 2000). Ecologia (2008) have stated that the Australian Bustard has a high likelihood of occurring within the application area, however, it is unlikely that this species would be reliant on the application area for habitat, as the habitat types present are well represented in the local area (Ecologia, 2008). The vegetation within the application area is therefore unlikely to represent significant habitat for this species.

None of the abovementioned fauna species are likely to be specifically dependant on habitats found within the application area, although they may use the project area as part of a foraging ground (Ecologia, 2008). The fauna habitats occurring within the application area are well represented within several conservation reserves, and in the Pilbara region generally (Ecologia, 2008). The application area has suffered previous disturbance from railway construction and maintenance activities, grazing, and weed invasion, and is unlikely to represent an area of significant fauna habitat in comparison to other undisturbed areas in the region.

Aerial photography suggests that the local area (20 km radius) is appears to be almost 100% vegetated.

Due to the weed disturbance within the application area, reducing the condition of the vegetation, and the highly vegetated local area, the proposed clearing is not consider to constitute significant habitat for fauna and is not likely to be at variance to this Principle.

Methodology Caughley et al. (1986)
DEWHA (2008)
Ecologia (2008)
ENV (2008b)
Garnett & Crowley (2000)
Start et al (1980)

(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

Two flora surveys were conducted over the application area.

The first survey was a Rare and Priority flora search conducted by ENV (2008c) in November 2006, covering a 400 hectare area surrounding the application area. Prior to the survey the area had received 1138.5 millimetres of rainfall (January to November) with most of this resulting from a high number of cyclones impacting the state during the 2005-2006 cyclone season (ENV, 2008c). The three months preceding the survey received a total of 38.3 millimetres, which is nearly twice the long term average (18.5 millimetres) of the area over those months (BOM, 2008). Therefore, it was expected the findings of the survey would accurately reflect the flora of the region.

The second survey was a flora and vegetation assessment conducted by ENV in February 2008, covering a 15 hectare area over the location for the proposed Turner Camp extension. The region had received well above average rainfall for the month preceding the flora survey (ENV, 2008a). Therefore, most annuals and ephemerals were likely to be present (ENV, 2008a).

Prior to conducting on ground surveys ENV conducted a desktop assessment of the vegetation of the application area to ascertain the likelihood of Rare Flora or Priority flora occurring in the application area. Using available databases and literature, ENV (2008c) described one Rare flora species and 23 Priority flora species which may occur within the application area. This would indicate that vegetation within the application area may be suitable habitat for some of these species.

Although vegetation within the application area may be suitable habitat for some species of conservation significant flora, no Rare flora or Priority flora were recorded within the application area during the November 2006 (ENV, 2008c) or February 2008 (ENV, 2008a) flora surveys. Therefore, the proposed clearing is unlikely to have any significant impacts on any species of Rare or Priority Flora.

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

Methodology BOM (2008)
ENV (2008a)
ENV (2008c)

(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 (GIS Database). There are no known TECs found within the Chichester Interim Biogeographic Regionalisation for Australia Subregion (Kendrick & McKenzie, 2001). The flora and vegetation survey of the application area did not identify any significant ecological communities within the application area (Ecologia, 2008).

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

Methodology Ecologia (2008)
Kendrick & McKenzie (2001)

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 area falls within the Interim Biogeographic Regionalisation for Australia Pilbara Bioregion (GIS database). Shepherd et al. (2001) report that approximately 99.9% of the pre-European vegetation still exists in this Bioregion. The vegetation in the application area is recorded as Beard Vegetation Associations 93; Hummock grasslands, shrub steppe; kanji over soft Spinifex (GIS Database; Shepherd et al., 2001). According to Shepherd et al. (2001) there is approximately 100% of this vegetation type remaining in the State and the bioregion (see table below).

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

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	% of Pre-European area in IUCN Class I-IV Reserves (and current %)
IBRA Bioregion - Pilbara	17,804,163	17,794,650	~ 99.9	6.3 (6.3)
Beard veg assoc. - State 93	3,044,326	3,044,267	~ 100	0.4 (0.4)
Beard veg assoc. - Bioregion 93	3,042,131	3,042,082	~ 100	0.4 (0.4)

* 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 Department of Natural Resources and Environment (2002).
Shepherd et al. (2001).

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

There are several non perennial drainage lines located within the application area (GIS Database). These drainage lines are dry for most of the year, only flowing briefly immediately following significant rainfall (BHP Billiton, 2008a). Non perennial drainage lines and the vegetation associated with them are very common within the Pilbara Bioregion.

The vegetation located within these drainage lines is described as:

Corymbia hamersleyana over *Acacia trachycarpa* over *Chrysopogon fallax* and *Triodia epactia* (ENV, 2008a).

Based on the above, the proposed clearing is at variance to this Principle, however, the proposed camp extension area, evaporation pond and borrow areas have been located to minimise disturbance to vegetation associated with drainage lines (BHP Billiton, 2008). BHP Billiton (2008) have committed to maintaining a 50 metre buffer from borrow areas to water courses.

BHP (2008b) stated that the activities works do not intersect any watercourses. A 30m buffer to watercourses will be a condition of the permit.

Methodology BHP Billiton (2008a)
BHP Billiton (2008b)
ENV (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

The application area is located on a relatively level rocky plain with mixed gravels (calcrete, ironstone and quartz) (ENV, 2008c) which undulates from the south-east of the application area towards the west-north-west (GIS Database). There are no significant slopes found within the application area (GIS Database).

The application area falls within the Macroy land system (Van Vreeswyk et al., 2004). The Macroy land system is described as stony plains and occasional tor fields based on granite supporting hard and soft spinifex grasslands (Van Vreeswyk et al., 2004). The landform found within the application area can be described as stony plains and interfluvies - level to gently undulating plains and interfluvies extending up to four kilometres between drainage lines in lower parts but much narrower between small drainage lines in upper parts; surface mantles of few to very abundant grit and pebbles of quartz and granite, occasional outcrops of granite (Van Vreeswyk et al., 2004). The system has low or very low erosion hazard (Van Vreeswyk et al., 2004).

Based on the topography within the application area, and the low risk of soil erosion in the land systems present, it is unlikely the proposed clearing will initiate significant levels of soil erosion.

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

Methodology BHP Billiton (2008a)
ENV (2008c)
Van Vreeswyk et al. (2004)

GIS Database:
Topographic Contours - 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**
According to available databases the application area does not fall within any conservation areas (GIS Database). The closest conservation reserve to the application area is the Mungaroon Range Nature Reserve, approximately 50 kilometres to the south-west. Due to the large distance between the application area and the conservation reserve it is unlikely the clearing associated with this proposal will have an impact on the conservation reserve.

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

(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 may be at variance to this Principle**
The application area is not situated within a Public Drinking Water Supply Area (GIS Database).

The proposed clearing is for the extension of a railway construction camp (BHP Billiton, 2008a). The application area has suffered previous disturbance from infrastructure developments (airstrip and camp) and rail maintenance activities (BHP Billiton, 2008a; GIS Database). The additional clearing of 70 hectares within the previously disturbed camp area is unlikely to have any impact on ground water level or quality.

The proposed activities will not intersect any watercourses (BHP 2008b) and a 30m buffer to watercourses will be a condition of the permit to ensure water quality is maintained.

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

Methodology BHP Billiton (2008a)
BHP Billiton (2008b)

GIS Database:
Public Drinking Water Supply Area
Cadastre

(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**
There are no permanent watercourses within the application area (GIS database). A few minor ephemeral drainage lines run through the application area. These drainage lines are dry for most of the year, only flowing briefly immediately following significant rainfall (BHP Billiton, 2008a).

The application area is located within the Turner River Catchment (GIS Database). Natural flooding occurs occasionally within this catchment during the wet season (November to March) following significant rainfall (BHP Billiton, 2008a). However, the relatively small area to be cleared (70 hectares) in relation to the large size of the catchment area (480,100ha) (GIS Database), is unlikely to cause or exacerbate the incidence or intensity of flooding.

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

Methodology BHP Billiton (2008a)

GIS Database:

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

Comments

There are several Aboriginal sites of significance located within two kilometres of the application area (GIS database; BHP Billiton, 2008a). 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.

The application does not involve the interference with bed and banks as the proposal does not intersect with any watercourses. A groundwater licence however is required from the Department of Water to drill a bore and to abstract groundwater. A copy of DoW licence to take water has been forwarded to DEC valid from 19 November 2008 to 30 November 2010 (GWL167112(1)).

Development approval is not required from the Town of Port Hedland for the proposed accommodation and associated works, as activities will be undertaken on land that is covered by State Agreement Act - Iron Ore (Mount Newman) Agreement 1964 (DOC68793).

Methodology BHP Billiton (2008a)

GIS Database:
Aboriginal sites of significance
Native Title Claims

4. Assessor's comments

Comment

The application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986, and the proposed clearing is at variance to Principles (f), may be at variance to Principle (i) and is not likely to be at variance to the remaining clearing Principles.

5. References

- BHP Billiton (2008a) Turner Camp Extension Application to Clear Native Vegetation (Purpose Permit) under the ENVIRONMENTAL PROTECTION ACT 1986. Supporting Documentation. June 2008.
- BHP Billiton (2008b) Documentation of Approvals required. Supporting Documentation. November 2008 (DOC69070).
- Bureau of Meteorology (2008) Climate of Port Hedland. URL: http://www.bom.gov.au/weather/wa/port_hedland/climate.shtml.
- Caughley G, Grice D, and Short J (1986) Density and Distribution of the Australian Bustard *Ardeotis australis*. *Biological Conservation* 35: 259-267.
- Department of Environment Water Heritage and the Arts (2008) Bush stone-curlew *Burhinus grallarius* <http://www.environment.gov.au/biodiversity/threatened/publications/tsd05bush-stone-curlew.html>
- 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 (2008) Turner River Camp Fauna Report, unpublished report for BHPBIO, Perth, Western Australia.
- ENV.Australia (2008a) Turner River Camp Flora and Vegetation Assessment, unpublished report for BHPBIO, Perth, Western Australia.
- ENV.Australia (2008b) Turner River Camp Level One Fauna Assessment, unpublished report for BHPBIO, Perth, Western Australia.
- ENV.Australia (2008c) Yandee Line Camp Redevelopment Declared Rare and Priority Flora, and Weed Survey, unpublished report for BHPBIO, Perth, Western Australia.
- Garnett, S.T., & Crowley, G.M. (2000) The Action Plan for Australian Birds. Department of the Environment and Water Resources, URL: <http://www.environment.gov.au/biodiversity/threatened/publications/action/birds2000/pubs/australian-bustard.pdf>
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Kendrick, P & McKenzie, N (2001) Pilbara 1 (PIL 1 Chichester Subregion) Subregional description and biodiversity values in "A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002" published by the Department of Conservation and Land management Western Australia.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
- Start, A.N., Anstee, S.D. & Endersby, M. (1980) A review of the biology and conservation status of the Ngadjji, *Pseudomys chapmani* Kitchener, (Rodentia: Muridae), in *CALMScience* 3(2): 125-147 (2000).
- Van Vreeswyk, A.M.E., & Payne, A.L. & Leighton, K.A. & Hennig, P (2004) An inventory and condition survey of the Pilbara region, Western Australia. Department of Agriculture, Western Australia.

6. Glossary

Term	Meaning
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now BCS)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
DoE	Department of Environment
DoIR	Department of Industry and Resources
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DEC)

