



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4984/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Atlas Iron Limited

1.3. Property details

Property: Mining Lease 45/1179
Miscellaneous Licence 45/204
Miscellaneous Licence 45/207

Local Government Area: Shire of East Pilbara

Colloquial name: Abydos Project

1.4. Application

| | | | |
|--------------------|-----------|--------------------|---------------------|
| Clearing Area (ha) | No. Trees | Method of Clearing | For the purpose of: |
| 282 | | Mechanical Removal | Mineral Production |

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 30 August 2012

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description Beard vegetation associations have been mapped for the whole of Western Australia and are useful to look at vegetation in a regional context. Two Beard vegetation associations have been mapped within the application area (GIS Database):

82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*; and

93: Hummock grasslands, shrub steppe; kanji over soft spinifex.

A Level 2 flora survey was conducted by Woodman Environmental Consulting (Woodman) over the larger Abydos area during 26-30 May 2011, 7-11 July 2008, 24 May-2 June 2011, 28 July-4 August 2011, 16-23 August 2011 and 22 September 2011. There were eight floristic community types recorded within the application area (Woodman, 2012):

FCT 1: Low isolated trees of *Corymbia hamersleyana* over tall sparse shrubland of mixed species including *Acacia tumida* var. *pilbarensis*, *Acacia pyrinflora* var. *pyrinflora* and *Grevillea wickhamii* subsp. *hispidula* over low sparse shrubland of mixed species including *Corchorus laniflorus* and *Bonamia rosea* over low grassland dominated by *Triodia epactia* and/or *Chrysopogon fallax* on red-brown sandy and clay loam on floodplains and in broad drainage lines;

FCT 2a: Tall open shrubland of mixed species dominated by *Grevillea wickhamii* subsp. *hispidula*, *Acacia tumida* var. *pilbarensis* and *Acacia orthocarpa* over low sparse shrubland of mixed species including *Dampiera candidans*, *Goodenia stobbsiana* and *Corchorus laniflorus* over low hummock grassland dominated by *Triodia epactia* or *Triodia bitextura* on red-brown silty loams over ironstone on hill crest and slopes;

FCT 2b: Low isolated trees of *Corymbia hamersleyana* over tall open shrubland of mixed species dominated by *Acacia tumida* var. *pilbarensis*, *Acacia ancistrocarpa*, *Acacia acradenia* and *Grevillea wickhamii* subsp. *hispidula* over low sparse shrubland of mixed species including *Dampiera candidans* and *Goodenia stobbsiana* over low hummock grassland dominated by *Triodia epactia* and/or *Triodia lanigera* on red-brown silty loams on floodplains and in broad drainage areas;

FCT 4: Low isolated trees of *Corymbia hamersleyana* or *Eucalyptus leucophloia* subsp. *leucophloia* over tall sparse shrubland of mixed species including *Acacia inaequilatera*, *Acacia acradenia* and *Grevillea wickhamii* subsp. *hispidula* over low sparse shrubland of mixed species including *Acacia ptychophylla*, *Acacia spondylophylla*, *Acacia hillianiana* and *Dampiera candidans* over low hummock grassland of mixed *Triodia* species dominated by a combination of *Triodia wiseana*, *Triodia brizoides* and *Triodia lanigera* on brown sandy clay loams over ironstone, calcrete or sandstone on hill crests and slopes, and occasionally on undulating plains and low rises;

FCT 5: Low isolated trees of *Corymbia hamersleyana* over tall sparse shrubland of mixed species dominated by *Acacia inaequilatera* and *Acacia acradenia* over low isolated shrubs of mixed species including *Corchorus parviflorus* and *Ptilotus astrolasius* var. *astrolasius* over low hummock grassland of mixed *Triodia* species

dominated by *Triodia* aff. *basedowii* and *Triodia wiseana* on brown sandy clay loams over calcrete or ironstone on undulating plains, low rises and low hills;

FCT 6: Low isolated trees of *Eucalyptus leucophloia* subsp. *leucophloia* over tall sparse shrubland of mixed *Acacia* species including *Acacia tumida* var. *pilbarensis* over low sparse shrubland of mixed species including *Acacia ptychophylla* over low hummock grassland dominated by *Triodia brizoides* with *Eriachne mucronata* also common on red to red-brown sandy and clay loams over ironstone on hill slopes, crests and in gorges;

FCT 7: Tall sparse shrubland of mixed species dominated by *Grevillea wickhamii* subsp. *hispidula*, *Acacia ancistrocarpa* and/or *Acacia acradenia* over low low isolated shrubs of mixed species over low hummock grassland dominated by *Triodia lanigera* or occasionally *Triodia epactia* on red-brown sandy and clay loams, occasionally with ironstone or quartz pebbles, on undulating plains and flats; and

FCT 10: Mid woodland of *Eucalyptus camaldulensis* subsp. *obtusata*, *Eucalyptus vitrix* and *Melaleuca argentea* over tall shrubland of mixed species including *Acacia ampliceps*, *Acacia trachycarpa*, *Acacia pyrifolia* var. *pyrifolia*, *Acacia tumida* var. *pilbarensis*, *Atalaya hemiglauca*, *Melaleuca glomerata* and *Melaleuca linopylla* over low open grassland and sedgeland of mixed species including *Triodia epactia*, *Triodia longiceps*, *Cenchrus ciliaris* and *Cyperus vaginatus* on red and brown sands, loams and silts in river and major creek channels and gorges.

Clearing Description Atlas Iron Ltd (Atlas Iron) has applied to clear up to 282 hectares of native vegetation within an application area of approximately 282 hectares for the purposes of mineral production (GIS Database). The application area is located approximately 65 kilometres west of Marble Bar (GIS Database).

This project will include two open pits, waste dump, camp, explosive magazine, ROM areas and access roads (Coffey Environments, 2012a).

Vegetation Condition Pristine: No obvious signs of disturbance (Keighery, 1994);

to

Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).

Comment The vegetation condition was assessed by botanists from Woodman (2012).

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 at variance to this Principle**

The flora and vegetation survey undertaken by Woodman (2012) identified eight different floristic community types (FCTs) within the application area. The majority of the vegetation was in 'excellent' condition (Woodman, 2012). The number of FCTs recorded within the application area was not considered to be high in relation to the size of the application area and compared to other studies of a similar size in nearby areas (Woodman, 2012). None of the vegetation communities were identified as being a Threatened or Priority Ecological Community (Woodman, 2012). FCT 10 was considered to be of moderate local significance as it occurs on landforms that are locally uncommon (Woodman, 2012). There were 723 hectares of this FCT mapped during the flora and vegetation survey of which 23 hectares is located within the application area (Coffey Environments, 2012a). Given a small percentage of this FCT will be impacted (approximately 3%), the proposed clearing is not likely to have a significant impact on this FCT.

The flora survey over the greater Abydos area recorded a total of 263 flora taxa from 112 genera and 40 families (Woodman, 2012). There were four species of Priority Flora recorded during the flora survey, however, none of these species were located within the application area (Woodman, 2012). However, one species; *Pityrodia* sp. Marble Bar (Priority 1) was recorded within 20 metres of the application area (Woodman, 2012). This species occupies specific habitat areas which were searched in detail within the application area (Woodman, 2012). It is usually found in low numbers and the proposed clearing is likely to have a low level of impact on this species (Woodman, 2012). There were five introduced flora species recorded within the application area, the most common of which was Buffel Grass (*Cenchrus ciliaris*) (Woodman, 2012). Potential impacts to biodiversity from introduced species may be minimised by the successful implementation of a weed management condition.

Fauna surveys of the greater Abydos area recorded a total of 149 vertebrate fauna species comprising of 21 mammal, 45 reptile, 75 bird, five amphibian and three fish species (Coffey Environments, 2012a). The vertebrate fauna species richness was considered to be comparable with that of similar sized surveys conducted in the surrounding region (Outback Ecology, 2012a). Nine species of conservation significance were recorded during the fauna surveys from a diverse range of fauna habitats (Coffey Environments, 2012a). The most significant of these habitats are major gorges and areas of semi-permanent water that contain diverse and significant fauna assemblages (Bamford Consulting Ecologists, 2009). The majority of this habitat is outside the application area and won't be impacted by the proposed clearing.

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

Methodology Bamford Consulting Ecologists (2009)
Coffey Environments (2012a)
Outback Ecology (2012a)
Woodman (2012)

(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 at variance to this Principle

A Level 2 fauna survey was conducted by Bamford Consulting Ecologists from 16-26 October 2008. This survey included the application area but covered a much larger area of habitat (Bamford Consulting Ecologists, 2009). Outback Ecology also conducted a Level 2 fauna survey and a Northern Quoll baseline survey over an area that included small parts of the application area but was largely over areas adjacent to the application area (Outback Ecology, 2011; 2012a). Based on these surveys there were nine broad fauna habitats identified within the application area (Coffey Environments, 2012a):

- Ironstone and sandstone gorges;
- Ironstone ridges;
- Major drainage lines;
- Minor shallow gorges and gullies;
- Sandstone ridges;
- Spinifex stony plain;
- Spinifex sandplain;
- Stony rises; and
- Riverine

A number of these habitats are likely to be significant for indigenous fauna species. The ironstone and sandstone gorges habitat contains waterholes, flowing springs, numerous cave systems and supported dense Melaleuca and Eucalypt woodlands (Bamford Consulting Ecologists, 2009). This habitat was found to support diverse and significant fauna assemblages and the majority of the conservation significant species recorded in the Abydos area occur within the gorge systems (Bamford Consulting Ecologists, 2009). These gorges are often a source of permanent water providing a significant resource to local fauna (Bamford Consulting Ecologists, 2009). There were 119 hectares of this habitat mapped within the larger Abydos survey area. There is only four hectares of this habitat within the application area (Coffey Environments, 2012a). Bamford Consulting Ecologists (2009) recorded a number of significant gorges within the survey area. There was only one of these present within the application area. This gorge is a sandstone gorge, which whilst not supporting extensive cave systems, sandstone gorges were found to be deeper than the ironstone gorges and contain extensive waterholes and creeks (Bamford Consulting Ecologists, 2009). Although the majority is outside the application area, the Trigg and Trigg East Gorges extend into the application area (Bamford Consulting Ecologists, 2009; GIS Database). These are both ironstone gorges that contain waterholes and caves. The minor shallow gorges and gullies habitat may also support caves and small areas supporting the Northern Quoll (*Dasyurus hallucatus*) (Bamford Consulting Ecologists, 2009). This habitat is widespread in the local area and is not as significant as the ironstone and sandstone gorges (Bamford Consulting Ecologists, 2009). There is eight hectares of this habitat within the application area (Coffey Environments, 2012a).

The major drainage lines habitat is also significant for fauna in the area. This habitat supports a number of conservation significant fauna and it is a linear habitat that supports the movement of fauna across the landscape (Bamford Consulting Ecologists, 2009). It also contains pools that may support migratory birds. The majority of this habitat is found outside the application area with 110 hectares mapped within the survey area and only four hectares within the application area (Coffey Environments, 2012a). The Riverine habitat is similar to the major drainage lines habitat in that it consists of major rivers and supports Eucalypt and Melaleuca woodlands. The majority of this habitat is also outside the application area with 177 hectares mapped within the survey area and only two hectares within the application area (Coffey Environments, 2012a). This habitat is only found within the western most polygon of the application area and is associated with the Chinnamon Creek. Potential impacts to this habitat may be minimised by the implementation of a watercourse management condition.

The largest amount of clearing proposed is within the ironstone ridges (82 hectares) and the sandstone ridges (79 hectares) habitats (Coffey Environments, 2012a). They were both mapped over large areas, with 381 and 582 hectares mapped within the survey area respectively (Coffey Environments, 2012a). Both of these habitats support and are foraging habitat for several conservation significant species (Bamford Consulting Ecologists, 2009). The impact to these habitats is likely to be low given that they are widespread throughout the region (Bamford Consulting Ecologists, 2009).

The impact on each of the remaining habitats is likely to be low given they are all widespread and the proposed impact is only a small proportion of that mapped within the survey area (less than 7% for each habitat) (Coffey Environments, 2012a).

The fauna habitats identified contain a number of significant habitat features such as caves, cliff faces, waterholes and springs. Bamford Consulting Ecologists (2009) recorded a number of significant caves, waterholes and springs during the fauna survey. None of those recorded are present within the application area. Only a small amount of the cliff faces habitat feature is within the application area at the site of the proposed waste dump. The proposed clearing is not likely to have a significant impact on this habitat feature within the local area.

The following 13 species of conservation significance were recorded within the survey area (Bamford Consulting Ecologists, 2009; Outback Ecology, 2011; 2012a):

- Northern Quoll (*Dasyurus hallucatus* - Schedule 1; Endangered);
- Pilbara Olive Python (*Liasis olivaceus barroni* - Schedule 1; Vulnerable);
- Pilbara Leaf-nosed Bat (*Rhinioncteris aurantia* - Vulnerable);
- Spectacled Hare-wallaby (*Lagorchestes conspicillatus leichardii* - Priority 3);
- Ghost Bat (*Macroderma gigas* - Priority 4);
- Western Pebble-mound Mouse (*Pseudomys chapmani* - Priority 4);
- Australian Bustard (*Ardeotis australis* - Priority 4);
- Bush Stone-curlew (*Burhinus grallarius* - Priority 4);
- Striated Grass-wren (*Amytornis striatus* - Priority 4);
- Rainbow Bee-eater (*Merops ornatus* - Migratory under the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*);
- Glandular Toadlet (*Uperoleia glandulosa* - locally significant);
- Barking Owl (*Ninox connivens* - locally significant); and
- Rothschild's Rock-wallaby (*Petrogale rothschildi* - locally significant).

Due to its impacts on species protected under the *EPBC Act*, the project was referred to the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC). The proposed activities were deemed to be a controlled action under the *EPBC Act*.

The Northern Quoll was recorded from three trappings and 14 scat sites by Bamford Consulting Ecologists (2009) and from six locations by Outback Ecology (2012a). None of these were within the application area, however, a number were within 50 metres of the application area. Given suitable habitat is present, the Northern Quoll is expected to utilise the application area. The Northern Quoll was recorded from the ironstone ridges, sandstone ridges, riverine and ironstone and sandstone gorges habitats. The riverine, ironstone and sandstone gorges habitats are likely to be the most significant as they contain semi-permanent sources of water. As discussed above, there was 119 hectares of the ironstone and sandstone gorges habitat recorded within the survey areas with four hectares located within the application area (Coffey Environments, 2012a). The majority of the gorges and significant water sources are outside the application area (Bamford Consulting Ecologists, 2009; Outback Ecology, 2012a). As the highest density of Northern Quolls was recorded in areas with semi-permanent water, changes to surface hydrology may have a detrimental impact on individuals outside the application area (Outback Ecology, 2012a). There were four hectares of major drainage lines habitat mapped within the application area with a total of 110 hectares mapped within the larger survey area (Coffey Environments, 2012a). Whilst only a small percentage of these habitats will be impacted, the proposed clearing may still impact on significant habitat for the local Northern Quoll population. Advice from Species and Communities Branch at the Department of Environment and Conservation indicates that the Abydos area is of local and regional significance given the uncommon habitat features and high population of Northern Quolls recorded (DEC, 2012). Some potential impacts to the local Northern Quoll population may be minimised by the implementation of a watercourse management condition to ensure that significant semi-permanent pools outside the application area are not adversely impacted. Atlas Iron has prepared a Significant Species Management Plan (SSMP) for the Abydos project which includes specific management measures relating to the Northern Quoll. Measures include signposting in Northern Quoll habitat, inductions of staff and contractors on the Northern Quoll, speed restrictions on traffic and a Northern Quoll monitoring program (Coffey Environments, 2012b). Atlas Iron (2012) has indicated the SSMP will be reviewed on an annual basis and if monitoring indicates negative impacts on the species, a review of the effectiveness of the management measures will be undertaken. The rehabilitation and decommission of the mine will aim to recreate Northern Quoll habitat where possible (Coffey Environments, 2012b). As part of the referral to DSEWPaC, Atlas Iron (2012) are proposing to fund Northern Quoll research and conservation programs to help offset the impacts of the proposal on Northern Quolls.

The Pilbara Olive Python was recorded from three locations by Bamford Consulting Ecologists (2009) and one location by Outback Ecology (2012a). None of these locations are within the application area, however, suitable habitat is present so it would be expected to utilise the application area (Bamford Consulting Ecologists, 2009; Outback Ecology, 2012a). The most significant habitat present for the Pilbara Olive Python is the same as the Northern Quoll being areas within gorges with semi-permanent water sources (Bamford Consulting Ecologists, 2009; Outback Ecology, 2012a). Therefore, impacts to this species habitat are likely to be similar to those of the Northern Quoll. Potential impacts to the local Pilbara Olive Python population may also be minimised by the implementation of a watercourse management condition.

A number of caves supporting the Pilbara Leaf-nosed Bat and the Ghost Bat were recorded during the fauna surveys (Bamford Consulting Ecologists, 2009; Outback Ecology, 2012a). None of the significant roosting caves listed in the surveys are located within the application area (Bamford Consulting Ecologists, 2009; Outback Ecology, 2012a). However, there are a number of caves located in close proximity and whilst these caves will be avoided, both species are likely to use the application area as foraging habitat. Given there has not been significant roosting caves identified within the application area, the proposed clearing is not expected to have a significant impact on these species.

The fauna survey by Bamford Consulting Ecologists (2009) recorded a number of active and inactive Western Pebble-mound Mouse mounds. None of these were recorded within the application area, however, suitable habitat is present within the application area so it would be expected that this species would be found within the application area (Bamford Consulting Ecologists, 2009). This species appeared to be common on stony plains and ridges in the greater Abydos area (Bamford Consulting Ecologists, 2009). As suitable habitat for the Western Pebble-mound Mouse is common in the local region, the proposed clearing is not likely to have a significant impact on this species.

The application area does not represent significant habitat for the remaining conservation significant species recorded and the impact of the proposed clearing is not expected to lead to significant impacts on these species.

A short range endemic (SRE) survey was undertaken by Outback Ecology between May and July 2010. The survey identified eight broad SRE habitats (Outback Ecology, 2012b). Only three of these habitats; Gorge, Gully and Riverine habitat are located within the application area (Coffey Environments, 2012a). Gorge habitat has a high potential for supporting SRE taxa whilst Gully and Riverine habitat have a medium potential (Outback Ecology, 2012b). There was 58.1 hectares of Gorge habitat mapped within the survey area, of which one hectare is within the application area (Coffey Environments, 2012a). A total of 60.7 hectares of Riverine habitat and 177.1 hectares of Gully habitat was mapped within the survey area of which two and 23 hectares respectively is within the application area (Coffey Environments, 2012a). The proposed clearing will only remove a relatively small amount of each broad habitat (less than 5% of Gorge and Riverine habitat and 13% of Gully habitat). The survey recorded six species of putative SREs (Outback Ecology, 2012b);

- *Antichiropus* 'abydos' (Millipede);
- *Aops* 'pilbara 2' (Scorpion);
- *Buddelundia* sp. 11 (Slater);
- *Buddelundia* sp. 18 (Slater);
- ?Gen. nov. sp. nov. (Snail); and
- *Tyrannothonius* 'near aridus' (Pseudoscorpion).

Antichiropus 'abydos' is a new species of millipede that was recorded from six locations, three within and three outside the application area (Outback Ecology, 2012b). Within the application area it was only recorded within the Gully habitat but outside it was also recorded within Gorge and Ridge habitat. As this species has been recorded outside the application area and much larger areas of suitable habitat has also been mapped outside the application area, the proposed clearing is likely to only impact this species at a local scale (Outback Ecology, 2012b). *Aops* 'pilbara 2' was not recorded within the application area and habitat it was recorded within is also not present within the application area (Outback Ecology, 2012b). Therefore, the proposed clearing is not likely to impact this species. *Buddelundia* sp. 11 was collected at sites both within and outside the application area. It has also been recorded from several other locations within the Pilbara approximately 30 to 50 kilometres from the application area (Outback Ecology, 2012b). Given this species appears to be widely distributed across the region, the proposed clearing is only expected to impact this species on a local scale. *Buddelundia* sp. 18 was also recorded from a number of locations both within and outside the application area. Within the application area it was only collected within Gully habitat, however, it was also recorded from Gorge and Ridge habitat outside the application area (Outback Ecology, 2012b). The large majority of potential habitat identified for this species is located outside the application area. ?Gen. nov. sp. nov. was not recorded within the application area, however, it was recorded within Gorge habitat at one site, which is present within the application area (Outback Ecology, 2012b). Only one hectare of the 58.1 hectares of Gorge habitat mapped is located within the application area (Coffey Environments, 2012a). Despite some taxonomic uncertainty, this species appears to be the same as another snail collected at a number of locations within the Pilbara including around the Wodgina minesite approximately 60 kilometres north-west of the application area (Outback Ecology, 2012b). *Tyrannothonius* 'near aridus' was recorded from ten sites located both inside and outside the application area (Outback Ecology, 2012b). This species has been recorded approximately 74 kilometres north-west of the application area, indicating that it may have a wide distribution (Outback Ecology, 2012b). Given this species appears to be widely distributed across the region, the proposed clearing is only expected to impact on this species at a local scale.

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

Methodology Atlas Iron (2012)
Bamford Consulting Ecologists (2009)
Coffey Environments (2012a)
Coffey Environments (2012b)
DEC (2012)
Outback Ecology (2011)
Outback Ecology (2012a)
Outback Ecology (2012b)
GIS Database:
- Wodgina 1.4m Orthomosaic

(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 databases, there are no records of any Threatened Flora species within the application area (GIS Database). The flora survey by Woodman (2012) did not record any Threatened Flora species.

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

Methodology Woodman (2012)

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**
According to available databases, there are no known Threatened Ecological Communities (TECs) within the application area. The vegetation survey by Woodman (2012) did not identify any of the vegetation recorded as being a TEC.

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

Methodology Woodman (2012)
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 Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 99.9% of the pre-European vegetation remains (see table) (GIS Database, Government of Western Australia, 2011).

The vegetation of the application area has been mapped as Beard vegetation associations 82 and 93 (GIS Database). Over 99% of these Beard vegetation associations remains at both a state and bioregional level (Government of Western Australia, 2011). The vegetation within the application area itself is neither a remnant nor does it form part of any remnants within the local area (GIS Database).

| | Pre-European area (ha)* | Current extent (ha)* | Remaining %* | Conservation Status** | Pre-European % in IUCN Class I-IV Reserves |
|------------------------------|-------------------------|----------------------|--------------|-----------------------|--|
| IBRA Bioregion – Pilbara | 17,804,193 | 17,785,000 | ~99.9 | Least Concern | 6.3 |
| Beard veg assoc. – State | | | | | |
| 82 | 2,565,901 | 2,553,217 | ~99.5 | Least Concern | 10.2 |
| 93 | 3,044,309 | 3,040,640 | ~99.8 | Least Concern | 0.42 |
| Beard veg assoc. – Bioregion | | | | | |
| 82 | 2,563,583 | 2,550,899 | ~99.5 | Least Concern | 10.2 |
| 93 | 3,042,114 | 3,038,471 | ~99.8 | Least Concern | 0.42 |

* Government of Western Australia (2011)

** 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)
Government of Western Australia (2011)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Wodgina 1.4m Orthomosaic

(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 numerous ephemeral watercourses within the application area (GIS Database). The most significant of these is Chinnamon Creek which passes through the western most section of the application area (GIS Database). FCT 1 and FCT 2b were often associated with broad drainage lines and FCT 10 is associated with rivers, creeks and gorges (Woodman, 2012). There are two hectares of FCT 1 and FCT 2b and ten hectares of FCT 10 within the application area (Coffey Environments, 2012a). During the vegetation survey of the larger Abydos area, there was 1,010, 377 and 723 hectares of these FCTs mapped respectively (Coffey Environments, 2012a). Given only a small percentage of these FCTs will be impacted by the proposed clearing, there is not expected to be significant impacts upon watercourses within the local area. Proposed

impacts to watercourses may be minimised by the successful implementation of a watercourse management condition.

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

Methodology Coffey Environments (2012a)
GIS Database:
- Hydrography, linear
- Rivers

(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 mapped as occurring on the Boolgeeda, Capricorn, Macroy and Rocklea land systems (GIS Database). The large majority of the application area consists of the Capricorn land system (GIS Database). The Macroy and Rocklea land systems have a low risk of erosion and the Boolgeeda and Capricorn land systems are not susceptible to erosion (Van Vreeswyk et al., 2004). Whilst these land systems have low erosion risk, the potential impacts of erosion may be minimised by the implementation of a staged clearing condition.

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

Methodology Van Vreeswyk et al. (2004)
GIS Database:
- Rangeland Land 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 application area does not lie within any conservation areas or DEC managed lands (GIS Database). The nearest conservation area is the Mungaroo Range Nature Reserve which is located approximately 75 kilometres south west of the application area (GIS Database). At this distance the proposed clearing is not likely to have any impacts on the environmental values of the Nature Reserve.

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

Methodology 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**
The application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). There are a number of ephemeral watercourses within the application area (GIS Database). Incised drainage channels are present throughout the application area and indicate high flows occurring within defined channels (MWH, 2012a). Light rainfall events over extended periods will produce small amounts of runoff with a minor sediment load and more intense rainfall events are likely to produce more runoff and higher velocity flows resulting in the transport of sediment (MWH, 2012a). There is the potential for the proposed activities to impact surface water flows outside the application area. Atlas Iron plans to implement a number of design measures including channels, floodways and culverts to minimise the disturbance to natural flow regimes (Coffey Environments, 2012a). Potential impacts to surface water quality may be minimised by the implementation of a watercourse management condition.

The groundwater within the greater Abydos area has been recorded between 400 and 1,000 milligrams per litre of total dissolved solids (MWH, 2012b). The groundwater over the Abydos area ranges from near potable along the ridge tops to brackish in areas further along the groundwater flow paths (MWH, 2012b). It would not be expected that the proposed clearing would cause salinity levels within the application or surrounding area to alter.

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

Methodology Coffey Environments (2012a)
MWH (2012a)
MWH (2012b)
GIS Database:
- 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

With an average annual rainfall of 300-400 millimetres and an average annual evaporation rate of 3,200-3,600 millimetres there is likely to be little surface flow during normal seasonal rains (MWH, 2012a). Whilst large rainfall events may result in the flooding of the area, the proposed clearing is not likely to lead to an increase in incidence or intensity of flooding.

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

Methodology MWH (2012a)

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

Comments

There are three native title claims over the area under application (GIS Database). These claims (WC00/5, WC96/61 and WC99/8) have been registered with the Native Title Tribunal on behalf of the claimant group (GIS Database). However, 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*.

According to available databases, there are no registered Aboriginal Sites of Significance within 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.

The project was referred to the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) by the applicant on 13 April 2012. On 11 May 2012 the DSEWPaC determined that project was a controlled action under the *EPBC Act 1999* and would be assessed on preliminary information.

The clearing permit application was advertised on 16 April 2012 by the Department of Mines and Petroleum inviting submissions from the public. There were no submissions received.

Methodology GIS Database:

- Aboriginal Sites of Significance
- Native Title Claims – Registered with the NNTT

4. References

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- Coffey Environments (2012b) Significant Species Management Plan Abydos DSO Project. Unpublished report for Atlas Iron Ltd, dated March 2012.
- DEC (2012) Advice to Assessing Officer from Species and Communities Branch, Department of Environment and Conservation. Received 22 June 2012.
- 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.
- Government of Western Australia (2011) 2011 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). WA Department of Environment and Conservation, Perth.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- MWH (2012a) Abydos Development Project Revised Surface Water Assessment. Unpublished report for Atlas Iron Ltd, dated February 2012.
- MWH (2012b) Abydos DSO Project Groundwater Assessment. Unpublished report for Atlas Iron Ltd, dated February 2012.
- Outback Ecology (2011) Atlas Iron Limited Abydos DSO Project Northern Quoll Annual Monitoring Program: Baseline Survey. Unpublished report for Atlas Iron Ltd, dated November 2011.
- Outback Ecology (2012a) Terrestrial Vertebrate fauna Impact Assessment. Unpublished report for Atlas Iron Ltd.
- Outback Ecology (2012b) Abydos DSO Project Terrestrial Short-range Endemic Invertebrate Fauna Assessment. Unpublished report for Atlas Iron Ltd, dated February 2012.
- Van Vreeswyk et al. (2004)
- Woodman (2012) Atlas Iron Limited Abydos Direct Shipping Ore Project Flora and Vegetation Studies. Unpublished report for Atlas Iron Ltd, dated March 2012.

5. Glossary

Acronyms:

| | |
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| 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 | Environmental 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.