



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4581/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Hamersley Iron Pty Ltd

1.3. Property details

Property: Iron Ore (Hamersley Range) Agreement Act 1963, Mineral Lease 4SA (AML 70/4)
Miscellaneous Licence 47/209
Miscellaneous Licence 47/342
Local Government Area: Shire of Ashburton
Colloquial name: Western Turner Syncline Section 10

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 15 December 2011

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. The following Beard vegetation associations have been mapped within the application area (GIS Database):

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

567: Hummock grasslands, shrub steppe; mulga and kanji over soft spinifex & *Triodia basedowii*.

A flora and vegetation survey was conducted over the Western Turner Syncline Section 10 area by botanists from Biota Environmental Sciences (Biota) in 2007. An additional survey incorporating additional areas to the 2007 survey was conducted in April 2011. The following 35 vegetation units were recorded within the application area (Biota, 2011):

Vegetation of Stony Plains and Low Stony Hills

- 1. AanAprAbERfTwTe:** *Acacia* aff. *aneura* (narrow fine veined; site 1259), *A. aneura* (grey bushy form, MET 15,732), *A. pruinocarpa* tall shrubland over *Acacia bivenosa*, *Eremophila forrestii* open shrubland over *Maireana georgei*, *Tribulus suberosus* scattered low shrubs over *Triodia wiseana*, *T. epactia* hummock grassland;
- 2. AanAprArTeTw:** *Acacia* aff. *aneura* (narrow fine veined, site 1259), *A. aneura* (grey bushy form; MET 15,732), *A. pruinocarpa*, *A. rhodophloia* tall shrubland over *Triodia epactia*, *T. Wiseana* hummock grassland;
- 3. AanAxTaffpTm:** *Acacia* "aneura", *A. xiphophylla* tall open shrubland over *Triodia* aff. *pungens*, (*T. melvillei*) open hummock grassland;
- 4. AanAxTwTe:** *Acacia* "aneura", *A. xiphophylla* tall shrubland over *Triodia wiseana*, (*T. epactia*) very open hummock grassland;
- 5. AanERcTmTw:** *Acacia* aff. *aneura* (narrow fine veined; site 1259), *A. aff. aneura* (subterete, long; site 1245), *A. aneura* (grey bushy form; MET 15,732) tall shrubland over *Eremophila cuneifolia* scattered low shrubs over *Triodia melvillei*, *T. wiseana* hummock grassland;
- 6. AxAanTspp:** *Acacia xiphophylla*, *A. "aneura"* tall shrubland over *Triodia* spp. very open hummock Grassland;
- 7. ChTw:** *Corymbia hamersleyana* scattered low trees over *Triodia wiseana* hummock grassland;
- 8. EIAbTw:** *Eucalyptus leucophloia* scattered low trees over *Acacia bivenosa* open shrubland over *Triodia wiseana* hummock grassland;
- 9. EIEgAprAaAatTw:** *Eucalyptus leucophloia*, *E. gamophylla* scattered low trees over *Acacia pruinocarpa*

scattered tall shrubs over *A. ancistrocarpa*, *A. atkinsiana* scattered shrubs over *Triodia wiseana* open hummock grassland;

10. **EITa**: *Eucalyptus leucophloia* scattered low trees over *Triodia angusta* hummock grassland;

11. **EsMeAbsTaTw**: *Eucalyptus socialis*, *Melaleuca eleuterostachya*, *Acacia bivenosa* (wispy, weeping form) scattered shrubs over *Triodia wiseana*, *T. angusta* open hummock grassland;

12. **ExTaTlo**: *Eucalyptus xerothermica* low open woodland over *Triodia angusta*, *T. longiceps* hummock grassland;

Vegetation of Tall Stony Hills

13. **AanAprTbr**: *Acacia* aff. *aneura* (narrow fine veined; site 1259), *A. pruinocarpa* tall open shrubland over *Triodia brizoides* hummock grassland;

14. **AanAxTbr**: *Acacia* "aneura", *A. xiphophylla* tall shrubland over *Triodia brizoides* open hummock Grassland;

15. **AprTw**: *Acacia pruinocarpa* tall open shrubland over *Triodia wiseana* hummock grassland;

16. **EIAhAmTbrTw**: *Eucalyptus leucophloia* scattered low trees over *Acacia hamersleyensis*, (*A. maitlandii*) tall open shrubland over *Triodia brizoides*, *T. wiseana* open hummock grassland;

17. **EIAhTwTe**: *Eucalyptus leucophloia* scattered low trees over *Acacia hamersleyensis* tall open shrubland over *Triodia wiseana*, *T. epactia* open hummock grassland;

18. **EIAmTbr**: *Eucalyptus leucophloia* scattered low trees over *Acacia maitlandii* shrubland over *Triodia brizoides* open hummock grassland;

19. **EIAmTwTe**: *Eucalyptus leucophloia* scattered low trees over *Acacia maitlandii* shrubland over *Triodia wiseana* (*T. epactia*) open hummock grassland;

20. **EIEgAprAaAatAexTeTw**: *Eucalyptus leucophloia*, *E. gamophylla* low open woodland over *Acacia pruinocarpa*, *A. ancistrocarpa*, *A. atkinsiana*, *A. exilis* tall open shrubland over *Triodia epactia*, *T. wiseana* hummock grassland;

21. **EITbr**: *Eucalyptus leucophloia* scattered low trees over *Triodia brizoides* hummock grassland;

Vegetation of Gullies and Gorges

22. **AmoAciAmTeTHt**: *Acacia monticola*, *A. citrinoviridis* tall shrubland over *Acacia maitlandii* open heath over *Triodia epactia* hummock grassland and *Themeda triandra* tussock grassland;

23. **EIAanTe**: *Eucalyptus leucophloia* low open woodland over *Acacia* "aneura" tall shrubland over *Triodia epactia* hummock grassland;

24. **EIAhAprAmTbrTeERIm**: *Eucalyptus leucophloia* low open woodland over *Acacia hamersleyensis*, *A. pruinocarpa* tall open shrubland over *Acacia maitlandii* open shrubland over *Triodia brizoides*, *T. epactia* open hummock grassland with *Eriachne mucronata* very open tussock grassland;

25. **EICfAanTbrERIm**: *Eucalyptus leucophloia*, *Corymbia ferriticola* low open woodland over *Acacia* "aneura" tall open scrub over *Triodia brizoides* open hummock grassland with *Eriachne mucronata* very open tussock grassland;

26. **EICfGOrTe**: *Eucalyptus leucophloia*, *Corymbia ferriticola* low open woodland over *Acacia Gossypium robinsonii* tall open scrub over *Triodia epactia* open hummock grassland;

Vegetation of Drainage Lines

27. **AciCEc**: *Acacia citrinoviridis* tall open scrub over **Cenchrus ciliaris* tussock grassland;

28. **AprAciAanTw**: *Acacia pruinocarpa*, *Acacia citrinoviridis*, *Acacia* aff. *aneura* (narrow fine veined; site 1259) tall shrubland over *Triodia wiseana* hummock grassland;

29. **EcEvAciMgAcoCEc**: *Eucalyptus camaldulensis*, *E. victrix* open forest over *Acacia citrinoviridis* low woodland over *Melaleuca glomerata*, *Acacia coriacea* subsp. *pendens* tall open shrubs over **Cenchrus ciliaris* open tussock grassland;

30. **EIAciAprTe**: *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees over *Acacia citrinoviridis*, *A. pruinocarpa* tall open scrub over *Triodia epactia* hummock grassland with *Themeda triandra*, *Digitaria brownii* open tussock grassland;

31. **EIAciGOrTe**: *Eucalyptus leucophloia* scattered low trees over *Acacia citrinoviridis*, *Gossypium robinsonii* tall shrubland over *Triodia epactia* open hummock grassland;

32. **EIchAatTeTw**: *Eucalyptus leucophloia*, *Corymbia hamersleyana* low open woodland over *Acacia atkinsiana* tall open scrub over *Triodia epactia*, *T. wiseana* open hummock grassland;

33. **EIPIAmoAhTeERIm**: *Eucalyptus leucophloia* scattered low trees over *Petalostylis labicheoides*, (*Acacia monticola*, *A. hamersleyensis*) tall open scrub over *Triodia epactia* very open hummock grassland with *Eriachne mucronata* open tussock grassland;

34. **EITE:** *Eucalyptus leucophloia* scattered low trees over *Triodia epactia* hummock grassland; and

35. **TOC:** Third order creeklines (various vegetation units).

There was also areas that were mapped as 'disturbed' which were areas disturbed or cleared of vegetation.

Clearing Description Hamersley Iron Pty Ltd has applied to clear 150 hectares within an application area of approximately 1,307 hectares (GIS Database). The application area is located approximately 18 kilometres west of Tom Price (GIS Database).

The proposed clearing is required for open pit mining, waste dumps, topsoil and ore stockpiles and associated activities.

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

to

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

Comment The vegetation condition was assessed by botanists from Biota.

The application area lies within the boundary of Ministerial Statement 807 for the Western Turner Syncline Section 10 project.

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**

Flora and vegetation surveys of the Western Turner Syncline 10 area identified 35 vegetation communities within the application area (Biota, 2011). This is not considered to represent a high number of vegetation communities given the size of the survey area and the landforms present (Biota, 2011). None of these communities have been identified as a Threatened or Priority Ecological Community and there are no records of either within the application area (Biota, 2011; GIS Database).

There was a total of 218 native flora species recorded during the Biota (2011) flora survey and 273 native flora species recorded during the Biota (2007) flora survey which also incorporated the infrastructure corridor to Tom Price. This number of species is considered to be comparable with other areas surveyed in the locality (Biota, 2011). There was three species of weed recorded within the application area; Bipinnate Beggar Tick (*Bidens bipinnata*), Speedy Weed (*Flaveria trinervia*) and Purslane (*Portulaca oleracea*). Potential impacts from weed species may be minimised by the successful implementation of a weed management condition.

Two species of Priority flora, *Eremophila magnifica* subsp. *velutina* (Priority 3) and *Sida* sp. Barlee Range (Priority 3) have been recorded within the application area (Biota, 2007; 2011). There was over 1,000 individuals of *Eremophila magnifica* subsp. *velutina* recorded during the flora survey and the population within the survey area is estimated to be approximately 1,500 individuals (Biota, 2011). This species was primarily recorded from moderate to steep hillslopes and broad gullies supporting *Triodia brizoides*, *Triodia wiseana* and *Triodia epactia* hummock grasslands (Biota, 2011). This species was also recorded outside the application area and suitable habitat is common throughout the local area (Biota, 2011). The proposed clearing is not anticipated to have significant impacts on this species.

Sida sp. Barlee Range was recorded at one location during the 2007 flora survey and from several locations during the 2011 flora survey (Biota, 2007; 2011). A total of 286 individuals were recorded during the 2011 flora survey and the total population is estimated to be between 300-400 individuals (Biota, 2011). This species was recorded from similar areas as *Eremophila magnifica* subsp. *velutina* but was more restricted to rocky areas particularly near breakaways (Biota, 2011). This species has been recorded on previous flora surveys in the Channar, Turee Syncline, Brockman, Western Turner Syncline, Koodaideri and Rhodes Ridge area (Rio Tinto, 2009). The amount of individual plants within these populations total in the hundreds (Rio Tinto, 2009). As there is suitable habitat and numerous populations within the Hamersley subregion, the proposed clearing is not anticipated to have a significant impact on this species.

There has been numerous other Priority Flora species recorded within surrounding areas (Biota, 2007; 2011). Suitable habitat is present for a number of the species and it is possible that some are present within the application area. However, the habitats present within the application area are well represented within the subregion so the proposed clearing is not likely to significantly any of the species that were identified as potentially occurring (Biota, 2011).

Fauna surveys have been undertaken over the greater Western Turner Syncline area and the Western Turner Syncline Section 10 area. These fauna surveys recorded a total of 126 and 96 fauna species respectively (Biota, 2011). The fauna species recorded during these surveys were generally representative of the taxa commonly recorded in this part of the bioregion (Biota, 2011). None of the fauna habitats present are considered to be locally or regionally restricted (Biota, 2011).

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

Methodology Biota (2007)
Biota (2011)
Rio Tinto (2009)
GIS Database:
- Threatened Ecological Sites Buffered

(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 Level two fauna survey has been conducted over the application area by Biota in July and September 2007 and July 2008. This survey identified the following six broad fauna habitats within the application area (Biota, 2011):

1. Open *Triodia* hummock grassland with emergent Eucalyptus on stony hills and rocky slopes;
2. Breakaways on hilltops with very open *Triodia* hummock grasslands and scattered *Acacia* spp. shrubs;
3. *Eucalyptus leucophloia* woodland over *Acacia citrinoviridis* on minor drainages;
4. Dense *Acacia* shrublands with emergent Eucalyptus on incised minor drainage lines;
5. Open mulga *Acacia aneura* woodland over open *Triodia* hummock grassland on stony clay plains; and
6. Open *Triodia* hummock grassland with scattered *Acacia* spp. on stony calcrete plain.

None of these habitats are restricted at a local or regional scale and are not likely to have elevated conservation significance (Biota, 2011). The fauna species recorded during the surveys was representative of the taxa commonly recorded in this part of the bioregion (Biota, 2011). Database searches identified twelve conservation significant species that have the potential to occur within the application area (Biota, 2011):

1. Northern Quoll (*Dasyurus hallucatus*) – Schedule 1; Endangered;
2. Pilbara Orange Leaf-nosed Bat (*Rhinonictis aurantius*) – Schedule 1; Vulnerable;
3. Pilbara Olive Python (*Liasis olivaceus barroni*) – Schedule 1; Vulnerable
4. Ghost Bat (*Macroderma gigas*) – Priority 4;
5. Lakeland Downs Mouse (*Leggadina lakedownensis*) – Priority 4;
6. *Notoscincus butleri* – Priority 4;
7. Western Pebble-mound Mouse (*Pseudomys chapmani*) – Priority 4;
8. Australian Bustard (*Ardeotis australis*) – Priority 4;
9. Long-tailed Dunnart (*Sminthopsis longicaudata*) – Priority 4;
10. Bush Stone-curlew (*Burhinus grallarius*) – Priority 4;
11. Peregrine Falcon (*Falco peregrinus*) – Schedule 4; and
12. Rainbow Bee-eater (*Merops ornatus*) – Migratory.

The Northern Quoll, Pilbara Orange Leaf-nosed Bat, Ghost Bat and Lakeland Downs Mouse have not been recorded within the application area and based on the habitats present it is considered unlikely that the application area would be significant for these species (Biota, 2011). The Pilbara Olive Python, Western Pebble-mound Mouse, *Notoscincus butleri*, Australian Bustard, Rainbow Bee-eater, Long-tailed Dunnart, Bush Stone-curlew and Peregrine Falcon are all considered likely to be present within the application area (Biota, 2011).

There was eleven active Western Pebble-mound Mouse mounds recorded during the fauna survey, however, none of these were within the application area (Biota, 2011). This species preferred habitat of scree slopes and stony plains are also present within the application area where it would be expected that this species would occur (Biota, 2011). Similar habitat for this species is common throughout the Pilbara bioregion and the proposed clearing is not expected to have a significant impact on habitat for the Western Pebble-mound Mouse.

Notoscincus butleri has been located several times from the Hamersley Ranges and coastal Pilbara area, commonly occurring in spinifex dominated areas adjacent to riparian habitats (Morton et al., 1995). This species has been recorded from areas of *Triodia* hummock grasslands in neighbouring areas and therefore, it is probable that it occurs within similar habitat within the application area (Biota, 2011). There are numerous ephemeral drainage lines within the application area, but the most significant is a larger drainage line that passes through the east of the application area (GIS Database). Vegetation community AciCEc is associated with this drainage line (Biota, 2011). Potential impacts to this species habitat may be minimised by the implementation of a condition that restricts the extent of clearing within this vegetation unit.

The Pilbara Olive Python is known from ranges within the Pilbara region of Western Australia. This species prefers escarpments, gorges and water holes (DSEWPAC, 2011). One individual was recorded during the fauna survey from breakaway habitat approximately 13 kilometres south-west of the application area (Biota, 2011). It is likely that individuals would periodically occur within similar habitat present within the application area (Biota, 2011). Therefore, the proposed clearing will result in the loss of some habitat for this species. There was 125.2 hectares of this breakaway habitat mapped during the flora survey (Biota, 2011). Rio Tinto in an email dated 7 November 2011, indicated that approximately 64.5 hectares of this habitat is located within the application area, of which approximately 20 hectares is anticipated to be cleared. Given that a relatively small part of this habitat is likely to be cleared, the proposed clearing is not expected to have a significant impact on this species.

Whilst they are likely to utilise the application area, the proposed clearing is not expected to have significant impacts on the Australian Bustard, Rainbow Bee-eater, Long-tailed Dunnart, Bush Stone-curlew and Peregrine Falcon (Biota, 2011).

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

Methodology Biota (2011)
DSEWPAC (2011)
Morton et al. (2005)
GIS Database:
- Hydrography, linear

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

Comments Proposal may be at variance to this Principle

According to available databases, there are no records of Declared Rare Flora (DRF) within the application area (GIS Database). Flora surveys over the application area have been undertaken by Biota in 2007 and 2011. These surveys identified suitable habitat for the DRF species *Lepidium catapycnon* (Biota, 2011). This species was not recorded during the flora survey, however, the entire application area was not systematically searched (Biota, 2011). No other species of DRF were recorded during the flora survey (Biota, 2011).

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

Methodology Biota (2011)
GIS Database:
- Threatened and Priority Flora List

(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 records of any Threatened Ecological Communities (TECs) within the application area (GIS Database). A vegetation survey was undertaken over the application area by Biota in 2007 and 2011. This vegetation survey did not identify any vegetation communities as being a TEC (Biota, 2011).

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

Methodology Biota (2011)
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, Shepherd, 2009).

The vegetation of the application area has been mapped as the following Beard vegetation associations (GIS Database):

82: Hummock grasslands, low tree steppe; snappygum over *Triodia wiseana*; and
567: Hummock grasslands, shrub steppe; mulga and kanji over soft spinifex & *Triodia basedowii*.

According to Shepherd (2009) approximately 100% of these Beard vegetation associations remains at both a state and bioregional level. Therefore the area proposed to be cleared does not represent a significant remnant of native vegetation within an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,193	17,785,000	~99.9	Least Concern	6.3
Beard veg assoc. – State					
82	2,565,901	2,565,901	~100	Least Concern	10.2
567	777,507	777,507	~100	Least Concern	22.3
Beard veg assoc. – Bioregion					
82	2,563,583	2,563,583	~100	Least Concern	10.2
567	776,824	776,824	~100	Least Concern	22.4

* 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 - Sub Regions)
- 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 numerous ephemeral watercourses within the application area (GIS Database). The majority of these are minor drainage lines, however, there is one significant drainage line in the east of the application area that flows directly into the Hardey River (GIS Database). There were nine vegetation units associated with drainage lines (Biota, 2011). The vegetation unit AcICEc is associated with the significant drainage line in the east (Biota, 2011). Potential impacts to this watercourse may be minimised by the implementation of a condition that restricts the extent of clearing within this vegetation unit. The vegetation associated with the minor drainage lines is common and widespread throughout the local area. The clearing of vegetation associated with the minor drainage lines is not expected to have significant impacts on watercourses in the Western Turner area.

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

Methodology Biota (2011)
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 has been mapped as occurring on the Newman, Platform and Table land systems (GIS Database). All of these land systems are generally not prone to erosion (Van Vreeswyk et al., 2004). Areas likely to be more prone to erosion are the areas associated with drainage lines. Rio Tinto in an email dated 7 November 2011, has indicated that only minor activities such as maintenance and upgrade works for existing infrastructure (Munjina Road, water pipeline, access tracks) will occur within the major drainage line in the east of the application area. Potential impacts of erosion may be minimised by the implementation of staged clearing and rehabilitation conditions.

At a broad scale the surface soil pH of the application area is 5.5 to 7.5 and approximately half of the application area has a low risk of acid sulphate soils (CSIRO, 2009). The average annual evaporation rate is over eight times the annual average rainfall so there is a low probability of the proposed clearing causing increased groundwater recharge resulting in rising saline water tables (GIS Database).

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

Methodology CSIRO (2009)
Van Vreeswyk et al. (2004)

- GIS Database:
- Evaporation isopleths
 - Rainfall, mean Annual
 - 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 Karijini National Park which is located approximately 30 kilometres east of the application area (GIS Database). Given the distance between the application area and the National Park, the proposed clearing is not likely to impact the environmental values of any conservation areas.

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 several minor non-perennial watercourses within the application area (GIS Database). The majority of the surface water within the application area is likely to occur as sheet flow following heavy rains. With an annual evaporation rate over eight times the average annual rainfall any surface water is likely to evaporate quickly (GIS Database). Extensive clearing within the major drainage line in the east of the application area has the potential to increase the sediment load within this watercourse. Rio Tinto in an email dated 7 November 2011, has indicated that only minor activities such as maintenance and upgrade works for existing infrastructure (Munjina Road, water pipeline, access tracks) will occur within this drainage line. Potential impacts to this watercourse may be minimised by the implementation of a condition that restricts the extent of clearing within the associated vegetation unit. The proposed clearing is not likely to have an impact on surface water quality in the local area.

The groundwater within the application area is between 500 – 1,000 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database). This is considered to be potable water. 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** GIS Database:
- Evaporation Isopleths
 - Groundwater Salinity, Statewide
 - Hydrography, linear
 - Mean Average Rainfall
 - 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 400 millimetres and an average annual evaporation rate of 3,400 millimetres there is likely to be little surface flow during normal seasonal rains (GIS Database). 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** GIS Database:
- Evaporation Isopleths
 - Mean Average Rainfall

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

Comments

The clearing permit application was advertised on 12 September 2011 by the Department of Mines and Petroleum inviting submissions from the public. There was one submission received stating no objections to the proposal.

There is one native title claim over the area under application (GIS Database). This claim (WC97/89) was determined by the Federal Court on 1 March 2007 (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 three registered Aboriginal Site 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.

The Western Turner Syncline Section 10 Mine was formally assessed by the Environmental Protection Authority as an Environmental Protection Statement. The application area lies entirely within the boundary of the area approved under Ministerial Statement 807. Ministerial Statement 807 approved a footprint of up to 530 hectares. Hamersley Iron Pty Ltd has identified that this limit will be surpassed and therefore, a new approval is required.

It is the proponent's responsibility to liaise with the Department of Environment and Conservation and the Department of Water to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

Methodology GIS Database:
- Aboriginal Sites of Significance
- Native Title claims - Determined by the Federal Court

4. References

- Biota (2007) A Vegetation and Flora Survey of the West Turner Section 10 Area and Infrastructure Corridor. Unpublished report for Pilbara Iron, dated December 2007.
- Biota (2011) West Turner Syncline Section 10 Expanded Vegetation and Flora Survey Report. Unpublished report for Rio Tinto Pty Ltd, dated July 2011.
- CSIRO (2009) Australian Soil Resource Information System. Available online at: http://www.asris.csiro.au/index_ie.html Accessed on 9 November 2011.
- 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.
- DSEWPAC (2011) Species Profile and Threats Database: *Liasis olivaceus barroni* - Olive Python (Pilbara subspecies). Available online at http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=66699 Accessed on 9 November 2011.
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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.