



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3468/2
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Hamersley Iron Pty Ltd

1.3. Property details

Property: Iron Ore (Mount Newman) Agreement Act 1964, Mineral Lease 244SA (AML 70/244)
Local Government Area: Shire of East Pilbara
Colloquial name: Hope Downs 4 Rail Route Option 1

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
28.05		Mechanical Removal	Access tracks, Geotechnical test pitting and Sterilisation drilling

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 28 July 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 at a 1:250,000 scale for the whole of Western Australia. Two Beard vegetation associations have been mapped within the application area (GIS Database; Shepherd, 2009).

18: Low woodland; mulga (*Acacia aneura*); and

82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana* (GIS Database; Shepherd, 2009).

The application area was surveyed by Mattiske Consulting Pty Ltd staff in April and May 2008 (Mattiske Consulting Pty Ltd, 2008). The following vegetation types were identified within the application area:

Flowlines (Creeklines and Drainage Areas)

C3: Tall shrubland of *Acacia arida*, *Acacia bivenosa*, *Acacia ancistrocarpa*, *Acacia maitlandii*, *Acacia monticola*, with occasional emergent *Corymbia deserticola* subsp. *deserticola*, *Eucalyptus gamophylla* and *Eucalyptus leucophloia* over *Gompholobium polyzygum*, *Indigofera monophylla*, *Rulingia luteiflora* over mixed *Triodia* species on sandy-loam soils in minor gullies.

Flats and Broad Plains

M1: Low woodland to open forest of *Acacia aneura* var. *aneura*, *Acacia pruinoarpa*, *Acacia catenulate* subsp. *occidentalis*, *Acacia rhodophloia*, *Grevillea berryana* with an occasional emergent *Eucalyptus leucophloia* and *Eucalyptus gamophylla* over *Psydrax latifolia*, *Keraudrenia nephrosperma*, *Acacia distans*, *Eremophila fraseri*, *Acacia tetragonophylla*, *Eremophila forrestii* subsp. *forrestii*, *Solanum lasiophyllum* over *Chrysopogon fallax*, *Triodia pungens* and *Triodia epactia* and a range of annual species on sandy-loam flats and broad plains.

M2: Low woodland of *Acacia aneura* var. *aneura* to a tall shrubland of *Acacia pyrifolia*, *Acacia bivenosa*, *Acacia ancistrocarpa* and *Acacia maitlandii* with occasional emergent *Eucalyptus xerothermica*, *Corymbia aspera*, *Psydrax latifolia* and *Acacia citrinoviridis* over *Gompholobium polyzygum*, *Rulingia luteiflora*, *Themeda triandra*, *Triodia epactia* and *Triodia pungens* on sandy soils on flats on edges of major creeklines.

Ranges, Hills and Hillslopes

B1: Hummock grassland of *Triodia basedowii*, *Triodia wiseana* and *Triodia pungens* with emergent patches of *Eucalyptus leucophloia*, *Acacia citrinoviridis*, *Acacia aneura* var. *aneura*, *Acacia pruinoarpa*, *Acacia synchronica* over *Eremophila latrobei* subsp. *glabra*, *Senna glutinosa*, *Solanum lasiophyllum*, *Eriachne mucronata* and species of *Maireana* and *Triodia* on narrow breakaways and rocky slopes on edges of hills and ranges.

S1: Hummock grassland of *Triodia epactia* with pockets of *Triodia basedowii* and *Triodia pungens* with emergent *Corymbia hamersleyana*, *Eucalyptus gamophylla*, *Eucalyptus leucophloia* over *Acacia aneura* var. *aneura*, *Acacia pruinocarpa*, *Acacia rhodophloia*, *Codonocarpus cotinifolius*, *Psydrax latifolia* and *Grevillea berryana* over *Acacia adoxa* var. *adoxo*, *Acacia arida*, *Acacia tenuissima*, *Acacia tetragonophylla*, *Acacia bivenosa*, *Acacia distans*, *Acacia hilliana*, *Eremophila latrobei* and *Eremophila forrestii* subsp. *forrestii* over range of annual species on gravelly soils on lower slopes.

S2: Hummock grassland of *Triodia basedowii*, *Triodia* aff. *wiseana* and *Triodia epactia* with emergent *Acacia pruinocarpa*, *Acacia inaequilatera*, *Corymbia deserticola* subsp. *deserticola*, *Corymbia hamersleyana*, *Eucalyptus leucophloia* and *Eucalyptus gamophylla* over *Eremophila latrobei*, *Acacia adoxa* var. *adoxo*, *Acacia arida*, *Acacia bivenosa*, *Acacia inaequilatera*, *Acacia hilliana*, *Indigofera monophylla* and a range of annual species on gravelly soils on mid and upper slopes of small ranges.

S3: Hummock grassland of *Triodia wiseana* with emergent *Eucalyptus leucophloia*, *Corymbia hamersleyana* over *Acacia adoxa* var. *adoxo*, *Acacia hilliana*, *Acacia marramamba*, *Codonocarpus cotinifolius*, *Indigofera monophylla*, *Hakea lorea* subsp. *lorea* over *Goodenia stobbsiana* and mixed *Senna* and *Ptilotus* species on gravelly soils on mid and upper slopes of ranges.

S4: Hummock grassland of *Triodia basedowii* and *Triodia pungens* with emergent *Eucalyptus leucophloia*, *Hakea lorea* subsp. *lorea*, *Grevillea wickhamii*, *Acacia ancistrocarpa*, *Acacia bivenosa*, *Acacia inaequilatera* over a range of annual species on low hills and ranges.

X4: Hummock grassland of *Triodia basedowii*, *Triodia wiseana* and *Triodia pungens* with emergent *Eucalyptus leucophloia* and *Corymbia hamersleyana* over *Acacia adoxa* var. *adoxo*, *Acacia tetragonophylla*, *Mirbelia viminalis*, *Acacia victoriae*, *Eremophila cuneifolia*, *Acacia hamersleyensis*, *Petalostylis labicheoides*, *Senna glutinosa* subsp. *glutinosa* and *Acacia bivenosa* and a range of annual species on calcrete soils on lower slopes (Mattiske Consulting Pty Ltd, 2008).

Clearing Description

Hamersley Iron Pty Ltd is proposing to clear up to 28.05 hectares of native vegetation within an area of 2,129.8 hectares.

The proposed program is to create access tracks and undertake geotechnical test pitting and sterilisation drilling on the proposed Hope Downs 4 Rail Alignment (Hamersley Iron Pty Ltd, 2009).

Clearing will be undertaken using raised blade where practicable or scrub rake on level terrain (Hamersley Iron Pty Ltd, 2009). Where previously cleared access tracks require maintenance, the tracks will be graded using a blade down technique (Hamersley Iron Pty Ltd, 2009).

Vegetation Condition

Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994);

To:

Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).

Comment

The application area is located in the Pilbara region, approximately 53 kilometres north-west of Newman (GIS Database). The vegetation condition was derived from a vegetation survey conducted by Mattiske Consulting Pty Ltd (2008).

Clearing permit CPS 3468/1 was granted on 10 February 2011, and is valid from 5 March 2011 to 5 March 2016. The clearing permit authorised the clearing of 9.45 hectares of native vegetation. An application for an amendment to clearing permit CPS 3468/1 was submitted by Hamersley Iron Pty Ltd of Australia Ltd on 17 May 2011. The proponent has requested to increase the area to be cleared from 9.45 hectares to 28.05 hectares, and to also amend the permit boundary. There were no additional environmental impacts as a result of this amendment.

3. Assessment of application against clearing principles

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

Comments

Proposal is not likely to be at variance to this Principle

The application area occurs within the Hamersley (PIL3) subregion of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is characterised by Mulga low woodland over bunch grasses on fine textured soils in valley floors, and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils on the ranges (CALM, 2002).

A vegetation survey of the application area and surrounding vegetation identified 301 flora species belonging to 124 genera from 42 families (Mattiske Consulting Pty Ltd, 2008). This species richness is considered to be typical for the Pilbara area.

One DRF (*Lepidium catapycnon*) and two Priority Flora species (*Rhagodia* sp. Hamersley (P3) and *Eremophila youngii* subsp. *lepidota* (P4)) were recorded within the application area during the vegetation survey (Mattiske Consulting Pty Ltd, 2008). Under section 23(F) of the *Wildlife Conservation Act 1950* the proponent is required

to obtain a permit from the Department of Environment and Conservation (DEC) if any DRF are to be impacted by the proposed clearing. Hamersley Iron Pty Ltd (2009) have proposed internal exclusion zones around the six populations of *Lepidium catapycnon* and made a commitment to avoid those stands as part of the Hope Downs 4 project.

The flora species *Rhagodia* sp. Hamersley was recorded from six locations within the application area, all occurring within the vegetation type M1 (Mattiske Consulting Pty Ltd, 2008). Vegetation maps provided by Hamersley Iron Pty Ltd (2009) indicate that there are other occurrences of this species in areas surrounding the application area. While, *Eremophila youngii* subsp. *lepidota* was recorded in the M3 vegetation unit within the survey area in low numbers. The presence of Priority Flora within the proposed clearing area increases its biodiversity significance. According to Shepherd (2009) approximately 100% of the Beard vegetation associations within the application area remain within the Pilbara bioregion, therefore it is not expected that the proposed clearing will threaten the conservation status of any Priority Flora species.

Three broad habitat types were recorded over the survey area. These habitat types were observed to be both common and widespread in the Pilbara bioregion, and are unlikely to be of higher biodiversity than the surrounding areas. The proposed clearing is unlikely to have a significant impact on the biological diversity of the region, or comprise of a high level of biological diversity.

Six weed species were recorded within the application area (Mattiske Consulting Pty Ltd, 2008). Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. This in turn can lead to greater rates of infestation and further loss of biodiversity if the area is subject to repeated fires. None of these species are listed as 'Declared Plant' species under the *Agriculture and Related Resources Protection Act 1976* by the Department of Agriculture and Food. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

The vegetation communities within the application area are not likely to be considered rare, geographically restricted or of significant conservation value. The vegetation communities and potential fauna habitats within the application area are considered common within the Pilbara region, and are unlikely to be of higher biodiversity than the surrounding areas.

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

Methodology CALM (2002)
Hamersley Iron Pty Ltd (2009)
Mattiske Consulting Pty Ltd (2008)
Shepherd (2009)
GIS Database:
- IBRA WA (regions - subregions)

(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 may be at variance to this Principle

Three broad habitat types were recorded within the application area. These were;

- **HD08 (M3):** Low open woodland of *Acacia aneura* var. *aneura*, *Acacia pruinocarpa* over *Acacia tetragonophylla*, *Eremophila forrestii* subsp. *forrestii* over *Triodia pungens* and a range of annual species on open sandy-loam flats and broad plains;
- **HD09 (S1):** Hummock grassland of *Triodia basedowii* with pockets of *Triodia pungens* with emergent *Eucalyptus gamophylla*, *Eucalyptus leucophloia*, *Acacia aneura* var. *aneura*, *Acacia pruinocarpa*, *Psyrax latifolia* and *Grevillea berryana* over *Eremophila fraseri* subsp. *galeata*, *Eremophila forrestii* subsp. *forrestii*, *Acacia adsurgens*, *Indigofera monophylla* and a range of annual species on gravelly soils on lower slopes.
- **HD10 (C1):** Open woodland of *Eucalyptus victrix*, *Eucalyptus camaldulensis* var. *obtusa* over *Acacia citrinoviridis* and *Acacia coriacea* subsp. *sericophylla* over *Petalostylis labicheoides*, *Acacia pyrifolia*, *Melaleuca lasiandra* over *Tephrosia rosea* var. *clement*, *Themeda triandra* and *Cleome viscosa* on major creeklines with sandy soils (Ninox Wildlife Consulting, 2008).

The eucalypt lined creeks of the area (habitat type HD10) are significant to vertebrate fauna in that they support a range of species not found anywhere else (Ninox Wildlife Consulting, 2008). Creeks, such as the Weeli Wollie Creek in the application area, act as corridors for the movement of species between habitats, which may be vital when fire occurs in the area (Ninox Wildlife Consulting, 2008; GIS Database). The large eucalypts recorded in habitat type HD10 also provide nesting and shelter habitat for a wide range of animals (Ninox Wildlife Consulting, 2008).

Ninox Wildlife Consulting (2008) also reported that several of the mulga thickets support denser patches of mulga which are locally significant as many stands in these northern areas occur as scattered and sparse communities. The lack of fire in some of these stands is ecologically significant as the litter layer is extensive and therefore a potential fauna habitat for some species of interest, while the loamy soils in these woodlands

are also likely to support a greater range of both vertebrates and invertebrates that use burrows for shelter (Ninox Wildlife Consulting, 2008).

The application area contains potentially important contemporary refugia for many species. The habitat types described by Ninox Wildlife Consulting (2008) are widespread with regular occurrences in a regional context. However, there are numerous non-perennial minor watercourse located within the application area (GIS Database). The vegetation associated with these drainage channels is riparian and likely to be a fauna refuge. Changes to the drainage patterns of these creeks will affect the quality of the vegetation.

Ninox Wildlife Consulting (2008) recorded large active pebble-mounds of the Western Pebble-mound Mouse (*Pseudomys chapmanii*) in habitat type HD09. The Western Pebble-mound Mouse is recorded as being widespread and abundant within the Hamersley subregion, with the status of the species being secure (CALM, 2002).

Given the relatively small size of the application area (20.45 hectares) it is unlikely that the proposed clearing will significantly impact on fauna habitat.

Based on the above, the proposed clearing may be at variance to this Principle. Potential impacts to significant fauna habitat as a result of the proposed clearing may be minimised by the implementation of a condition whereby the proponent must avoid significant habitat surrounding creek lines.

Methodology CALM (2002)
Ninox Wildlife Consulting (2008)
GIS Database:
- Hydrography- Linear
- NATMAP 250K Series Mapping

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

Comments Proposal is at variance to this Principle

According to available GIS databases there is one known record of Declared Rare Flora (DRF) within the application area, namely *Lepidium catapycnon* (GIS Database).

A flora survey was conducted over the application area by staff from Mattiske Consulting Pty Ltd during April and May 2008 (Mattiske Consulting Pty Ltd, 2008). The survey was conducted via foot and vehicle traverses in April 2008 and May 2008 (Mattiske Consulting Pty Ltd, 2008). Recordings were taken at 139 permanent sites within the survey area, which encompasses the Hope Downs 4 infrastructure corridor, with selective opportunistic collecting undertaken at additional sites in plant communities of like structure and floristic composition (Mattiske Consulting Pty Ltd, 2008).

There were some limitations in some sections of the survey area (Mattiske Consulting Pty Ltd, 2008). The selection of permanent sites for the infrastructure corridor survey area was influenced by the extent of recent fires in the area, however this was overcome through the additional opportunistic sampling and through the use of historical survey data which was undertaken in the area prior to clearing for drill sites and tracks both within the Hope Downs 1 survey area and in the Hope Downs 4 mining area survey. Furthermore, the field studies were undertaken in April and May 2008 after favourable seasonal rains and therefore, the potential for maximising the number of species recorded and the likelihood of recording any conservation significant species was optimal (Mattiske Consulting Pty Ltd, 2008).

One DRF species (*Lepidium catapycnon*) was recorded during the survey (Mattiske Consulting Pty Ltd, 2008). *Lepidium catapycnon* is an open, woody perennial herb or shrub, which prefers skeletal soils on hillsides (Western Australian Herbarium, 2010). Mattiske Consulting Pty Ltd (2008) report that this species appears to be a disturbance opportunist. Mattiske Consulting Pty Ltd (2008) recorded *Lepidium catapycnon* in the B1, S2 and S4 vegetation units within the survey area.

Under section 23(F) of the *Wildlife Conservation Act 1950* the proponent is required to obtain a permit from the Department of Environment and Conservation (DEC) if any DRF are to be impacted by the proposed clearing. Hamersley Iron Pty Ltd (2009) have proposed internal exclusion zones around the six populations of *Lepidium catapycnon* and made a commitment to avoid those stands as part of the Hope Downs 4 project.

Based on the above, the proposed clearing is at variance to this Principle. Given the approvals required from the DEC to remove DRF and their commitment to avoid disturbing the six recorded populations of *Lepidium catapycnon* within the application area, the proposed clearing is unlikely to have a significant impact upon the conservation status of these flora species. Potential impacts to DRF as a result of the proposed clearing may be minimised by the implementation of a flora management condition.

Methodology Hamersley Iron Pty Ltd (2009)
Mattiske Consulting Pty Ltd (2008)
Western Australian Herbarium (2010)

GIS Database:
- Declared Rare 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

A search of available databases reveals that there are no Threatened Ecological Communities (TEC's) within the application area (GIS Database).

The nearest TEC is located approximately 61 kilometres south-east of the application area (Ethel Gorge) (GIS Database). At this distance there is little likelihood the application area comprises the whole or part of, or is necessary for the maintenance of the TEC.

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

Methodology GIS Database:
- Threatened Ecological Sites Buffered

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

Comments Proposal is not at variance to this Principle

The application area falls within the Pilbara IBRA bioregion (GIS Database). Shepherd (2009) reports that approximately 99.89% of the pre-European vegetation remains in this bioregion.

The vegetation in the application area is recorded as Beard vegetation associations:

18: Low woodland; mulga (*Acacia aneura*); and

82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana* (GIS Database; Shepherd, 2009).

According to Shepherd (2009) approximately 100% of these Beard vegetation associations remain within the Pilbara bioregion (see table below).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Pilbara	17,804,193	17,785,001	~99.89%	Least Concern	~6.32%
Beard vegetation associations - State					
18	19,892,305	19,890,275	~99.99%	Least Concern	~2.13%
82	2,565,901	2,565,901	~100%	Least Concern	~10.24%
Beard vegetation associations - Bioregion					
18	676,557	676,557	~100%	Least Concern	~16.8%
82	2,563,583	2,563,583	~100%	Least Concern	~10.25%

* Shepherd (2009)

** Department of Natural Resources and Environment (2002)

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

Methodology Department of Natural Resources and Environment (2002)
Shepherd (2009)
GIS Database:
- IBRA WA (regions - subregions)
- Pre-European Vegetation

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

Comments Proposal is at variance to this Principle

According to available GIS Databases, Weeli Wolli Creek is located at the western end of the application area

(GIS Database), with Weeli Wolli springs (PEC) located approximately 13 kilometres north (GIS Database).

Based on vegetation and habitat mapping conducted by Mattiske Consulting Pty Ltd (2008) and Ninox Wildlife Consulting (2008) riparian vegetation is present within the application area.

Vegetation mapping of the application area by (Mattiske Consulting Pty Ltd, 2008) indicates that approximately 98 hectares of the native vegetation within the application area is riparian vegetation. The disturbance of riparian vegetation is likely to alter the watercourses natural regime.

Based on the above, the proposed clearing is at variance to this Principle. Potential impacts to riparian vegetation as a result of the proposed clearing may be minimised by the implementation of a vegetation management condition.

Methodology Mattiske Consulting Pty Ltd (2008)
Ninox Wildlife Consulting (2008)
GIS Database:
- Geodata, Lakes
- Hydrography - Linear
- NATMAP 250K Series Mapping

(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 surveyed by the Department of Agriculture and Food (Van Vreeswyk et al., 2004), and is comprised of the Egerton land system, Newman land system, Platform land system and the Spearhole land system (GIS Database).

The Egerton, Platform and Spearhole land systems are described as not being susceptible to erosion (Van Vreeswyk et al, 2004). While the Newman land system is described as having a very low erosion risk (Van Vreeswyk et al, 2004).

The vegetation described by Van Vreeswyk et al. (2004) accurately reflects the vegetation types described in vegetation surveys conducted over the area (Mattiske Consulting Pty Ltd, 2008).

The proposed clearing of 28.05 hectares of native vegetation is not likely to cause appreciable land degradation.

Based on the above, the proposed clearing is not likely to be at variance to this Principle. Potential land degradation impacts as a result of the proposed clearing may be minimised by the implementation of a rehabilitation condition.

Methodology Mattiske Consulting Pty Ltd (2008)
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 proposed clearing is not located within a conservation reserve (GIS Database). The nearest known conservation reserve is Karijini National Park, located approximately 54 kilometres west (GIS Database). At this distance, the proposed clearing is not likely to impact on 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

According to available databases, the application area is not located within a Public Drinking Water Source Area (GIS Database).

The groundwater salinity within the application area is approximately 500 - 1,000 milligrams/Litre Total Dissolved Solids (GIS Database). This is considered to be potable water. Given the size of the area to be

cleared (9.45 hectares) compared to the size of the Hamersley Groundwater Province (10,166,833 hectares) (GIS Database), the proposed clearing is not likely to cause salinity levels within the application area to alter significantly.

The application area is located within a *Rights in Water Irrigation Act, 1914* (RIWI Act) Groundwater Management Area (GIS Database). The proponent is required to obtain permits to abstract groundwater in this area.

The application area is located within a semi-desert tropical environment with an average annual rainfall of 310.2 millimetres recorded from the nearest weather station at Newman approximately 53 kilometres south-east of the application area (BoM, 2010; CALM, 2002). The small size of the proposed clearing area within the above climate is unlikely to result in significant changes to surface water flows.

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

Methodology BoM (2010)
CALM (2002)
GIS Database:
- Groundwater Provinces
- Groundwater Salinity, Statewide
- Public Drinking Water Source Areas
- RIWI Act, Groundwater Areas

(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 mapped within the application area however Weeli Wolli Creek is located at the western end of the application area, along with numerous minor ephemeral drainage lines (GIS Database).

Local flooding occurs seasonally in the Pilbara region as a result of cyclonic activity and sporadic thunderstorms and it is likely that the drainage lines within the application area would experience seasonal flooding during high rainfall periods however it is not likely that the clearing of 9.45 hectares of vegetation will increase the incidence or intensity of this flooding.

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

Methodology GIS Database:
- Hydrography - Linear
- NATMAP 250K Series Mapping

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

Comments

There are two Native Title Claims (WC05/6 and WC10/1) over the area under application. These claims have been registered with the National Native Title Tribunal on behalf of the claimant group. 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 several registered Aboriginal Sites of Significance within the application area (GIS Database). It is the proponents' responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged throughout 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.

Hamersley Iron Pty Ltd referred the Hope Downs 4 Iron Ore Mine proposal to the Office of the Environmental Protection Authority (OEPA) on 2 May 2008. The OEPA provided the following recommendation on 2 June 2008 - "Formal Assessment - Public Environmental Review". Following the assessment and subsequent appeal periods the Minister for Environment; Water determined on 1 February 2011 that the proposal may be implemented subject to conditions and procedures.

Clearing permit CPS 3468/1 was granted on 10 February 2011, and is valid from 5 March 2011 to 5 March 2016. The clearing permit authorised the clearing of 9.45 hectares of native vegetation. An application for an amendment to clearing permit CPS 3468/1 was submitted by Hamersley Iron Pty Ltd of Australia Ltd on 17 May 2011. The proponent has requested to increase the area to be cleared from 9.45 hectares to 28.05 hectares, and to also amend the permit boundary. There were no additional environmental impacts as a result of this

amendment.

- Methodology** GIS Database:
- Aboriginal Sites of Significance
 - Native Title Federal
 - Native Title NNTT

4. References

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- Shepherd, D.P. (2009) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.
- Van Vreeswyk, A.M.E., Payne, A.L., Hennig, P., and Leighton, K.A. (2004) An Inventory and Condition Survey of the Pilbara Region, Western Australia, Department of Agriculture, Western Australia.
- Western Australian Herbarium (2010) FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.dec.wa.gov.au/> (Accessed 19 January 2010).

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.