



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2546/4
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Hamersley Iron Pty Ltd

1.3. Property details

Property: Miscellaneous Licence 47/221
Local Government Area: Shire of Roebourne
Colloquial name: 7 Mile Power Station

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
47.5		Mechanical Removal	Power Station Construction

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 16 February 2012

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
<p>Beard vegetation associations have been mapped at a 1:250,000 scale for the whole of Western Australia. One Beard vegetation association is located within the application area; 589: Mosaic: Short bunch grassland savanna, with soft spinifex hummock grasslands (Shepherd, 2009; GIS Database; Biota Environmental Sciences, 2008).</p> <p>Biota Environmental Sciences (2008), conducted two flora surveys of the application area in March and April, 2008. The first survey, conducted from the 26 to the 30 March, had low rainfall conditions, however the second survey, conducted from the 22 to the 27 April, 2008, was performed following substantial rainfall in early April (Biota Environmental Sciences, 2008).</p> <p>The following four vegetation types were identified within the application area:</p> <ol style="list-style-type: none"> 1) <i>Eragrostis xerophila</i> tussock grassland on clay plains. 2) <i>Acacia bivenosa</i>, <i>A. ancistrocarpa</i>, <i>A. inaequilatera</i> tall shrubland over <i>Triodia wiseana</i> hummock grassland on stony clay plains. 3) <i>Acacia bivenosa</i>, <i>A. inaequilatera</i> open shrubland over <i>Chrysopogon fallax</i> very open tussock grassland 	<p>Hamersley Iron Pty Ltd has applied to clear up to 47.5ha of native vegetation within 303ha, for the purpose of constructing a power station. The proposal includes the construction of the power station site, heavy access route and associated infrastructure.</p> <p>The site is located approximately 8km south of Dampier and approximately 8km west of Karratha. Clearing will be by dozer, blade down, and the topsoil and vegetation will be used in the rehabilitation process (Hamersley Iron, 2008).</p>	<p>Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).</p> <p>To</p> <p>Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).</p>	<p>The vegetation condition was derived from two flora surveys conducted by Biota Environmental Sciences in March and April 2008. These surveys involved setting up five quadrats representing each of the vegetation units present within the application area, and recording the flora present within each quadrat.</p> <p>Clearing permit CPS 2546/1 was granted by the Department of Industry and Resources (now Department of Mines and Petroleum) on 7 August 2008 and was valid from 6 September 2008 to 31 July 2013. The clearing permit authorised the clearing of 40.5 hectares within an area of 303 hectares.</p> <p>Clearing permit amendment applications CPS 2546/2 and CPS 2546/3 were withdrawn and declined respectively.</p> <p>The proponent has requested an amendment</p>

and *Triodia wiseana* grassland on stony clay plains.

4) *Acacia inaequilatera* scattered tall shrubs over *Triodia wiseana* hummock grassland on stony clay plains.

to increase the area authorised to clear by an additional 7 hectares, increasing the area authorised to clear to 47.5 hectares. The clearing permit boundary will remain the same. The proposed amendment is to allow for the installation of a fifth generating turbine and associated infrastructure.

The additional clearing has the potential to increase the impacts upon the Roebourne Plains Priority Ecological Community (PEC) within the application area. However, given that the PEC will be fenced off from cattle grazing, the additional clearing of the PEC is not expected to have significant impacts. The proposed amendment is not likely to have any other significant environmental impacts.

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 may be at variance to this Principle

The application area is located within the Roebourne Interim Biogeographic Regionalisation for Australia (IBRA) sub-region (GIS Database). The Roebourne sub-region primarily consists of quaternary alluvial plains with a grass savannah of mixed bunch and hummock grasses, and dwarf shrub steppe of *Acacia stellaticeps* over *Triodia pungens* (Hamersley Iron, 2008; Kendrick and Stanley, 2001). The climate of the Roebourne sub-region is semi-arid-tropical with summer rain and has significant cyclonic activity (Hamersley Iron, 2008; Kendrick and Stanley, 2001).

The application area is located approximately 15km south of the Burrup Peninsula and near to the Dampier Archipelago region (GIS Database) which is a region of high diversity (Department of Environment, Water, Heritage and the Arts, 2008). Over 100 species of birds have been recorded within the Dampier Archipelago region, including both terrestrial and sea and shore birds, some migratory (Department of Environment, Water, Heritage and the Arts, 2008). Many reptiles occur within the region with 32 species known from the Burrup Peninsula and 41 species known from the Dampier Archipelago (Department of Environment, Water, Heritage and the Arts, 2008). In addition the region is high in plant diversity with 393 species of vascular plants recorded from the Burrup Peninsula, representing 67 families and 184 genera (Department of Environment, Water, Heritage and the Arts, 2008).

Two flora surveys of the application area were carried out by Biota Environmental Sciences in March and April 2008. These surveys identified a total of 113 vascular flora species from 73 genera belonging to 29 families (Biota Environmental Sciences, 2008). Within the application area Biota Environmental Sciences (2008) have identified the flora families with the most species richness; Grass family (*Poaceae*), Pea family (*Papilionaceae*), Hibiscus family (*Malvaceae*), Morning Glory family (*Convolvulaceae*), Wattle family (*Mimosaceae*), Amaranth family (*Amaranthaceae*) and Spurge family (*Euphorbiaceae*).

Four weed species have been identified within the application area; Buffel Grass (*Cenchrus ciliaris*); Common Purslane (*Portulaca oleracea*); Kapok Bush (*Aerva javanica*) and Weed Melon (*Cucumis melo* subsp. *agrestis*). The application area is generally in a good to excellent condition with weed invasion not being overly extensive (Biota Environmental Sciences, 2008). Potential impacts on biodiversity from invasive weed species may be minimised by the implementation of a weed management condition.

Biota Environmental Sciences (2008) reported that no Rare or Priority flora were recorded during the survey. A Priority Ecological Community (PEC) was identified as occurring within the application area; the Roebourne Plains coastal grasslands (Biota Environmental Sciences, 2008). Within the application area the Roebourne Plains Coastal Grasslands consist primarily of vegetation type 1: *Eragrostis xerophila* tussock grassland on clay plains (Biota Environmental Sciences, 2008). The section of this PEC that falls within the application area is generally in Very Good (sometimes Excellent) condition, with some areas of scattered weeds and occasional signs of grazing (Hamersley Iron, 2008).

primarily through engineering and environmental design measures and consultation with stakeholders (Hamersley Iron, 2008). In addition, following consultation with the Department of Environment and Conservation, Hamersley Iron have altered the design of the permanent access road to the site in order to negate potential surface hydrological impacts that the development could have caused to the PEC (Hamersley Iron, 2008).

New fence will be erected to the south and east of the area to enclose the PEC and prevent cattle from Karratha Station disturbing the ecological community (Hamersley Iron, 2008). Furthermore, negotiations between Hamersley Iron and Karratha Station have achieved a commitment to ensure cattle are restricted outside of the proposed fenced area (Hamersley Iron, 2008). This is an important step, as cattle grazing is one of the most threatening land uses to the PEC, resulting in the death of tussocks and the development of bare patches (DAFWA, 2002). In addition, cattle grazing can encourage the spread of weeds into previously healthy areas. The potential impacts to the PEC may be minimised by the implementation of a condition that requires a fence be constructed to exclude cattle grazing from the PEC.

According to the Western Australian Museum, (WA Museum) Database up to 226 fauna species may potentially occur within a 50km radius of the application area including 7 amphibian species, 109 reptile species, 69 bird species and 41 mammal species (Western Australian Museum, 2008). This would indicate that the area is high in reptile and bird diversity, however, this diversity can be primarily attributed to the complex topography of the Burrup Peninsula and Dampier Archipelago and the consequent diversity of habitats in these areas (Department of Environment and Conservation, 2006). Therefore, the application area is expected to have lower fauna species diversity than indicated above.

The landforms, flora species and fauna habitats in the application area are well represented locally and within the Pilbara region generally (Biota Environmental Sciences, 2008). The proposed clearing is unlikely to have any significant impact on the biological diversity of the region.

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

Methodology Biota Environmental Sciences (2008)
DAFWA (2002)
Department of Environment and Conservation (2006)
Department of Environment, Water, Heritage and the Arts (2008)
Hamersley Iron (2008)
Kendrick and Stanley (2001)
Western Australian Museum (2008)
GIS Database:
- IBRA WA (Regions - Subregions)
- Natmap - 250K Series Mapping

(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

Biota Environmental Sciences (2008) have identified two main fauna habitats within the application area:
1) Clay Plains (cracking and non-cracking) supporting *Eragrostis xerophila* tussock grassland, and;
2) Stony Clay Plains (non-cracking clay) supporting mixed Acacia species over *Triodia wiseana* hummock grassland.

Biota Environmental Sciences have searched databases maintained by the WA Museum and the Department of Environment and Conservation (DEC), for Schedule and Priority fauna within a 50km radius around the Dampier and Cape Lambert areas (Biota Environmental Sciences, 2008). This search has identified 13 fauna species of conservation significance that could potentially occur within the application area based on their known distributions and habitat; Northern Quoll (*Dasyurus hallucatus*), Mulgara (*Dasyercus cristicauda*), Pilbara Leaf-nosed bat (*Rhinioncteris aurantius*), Pilbara Olive Python (*Liasis olivaceus barroni*), a skink (*Lerista quadrivincula*), Little Northern Free-tail Bat (*Mormopterus loriae cobourgiana*), Spectacled Hare-wallaby (*Lagorchestes conspicillatus leichardti*), Banded Hare Wallaby (*Lagostrophus fasciatus fasciatus*), Australian Bustard (*Ardeotis australis*), Lakeland Downs Mouse (*Leggadina lakedownensis*); Peregrine Falcon (*Falco peregrinus*); Ghost Bat (*Macroderma gigas*); Western Pebble-mound Mouse (*Pseudomys chapmani*); Bush Stone-Curlew (*Burhinus grallarius*), Eastern Curlew (*Numenius madagascariensis*), Star Finch (*Neochima ruficauda subclarescens*) and the Rainbow Bee-eater (*Merops omathus*) (Biota Environmental Sciences, 2008).

Biota Environmental Sciences (2008) have performed an EPBC Protected Matters Search for the survey area and have listed 16 migratory birds listed under the JAMBA and CAMBA international migratory agreements that could potentially occur within the application area. The following species are likely to be overfly and occasional visitors, rather than using the habitats of the project area regularly; White-bellied Sea-eagle (*Haliaeetus leucogaster*), Barn Swallow (*Hirundo rustica*), Great Egret (*Ardea alba*), Cattle Egret (*Ardea ibis*), Ruddy Turnstone (*Arenaria interpres*), Oriental Plover (*Charadrius veredus*), Oriental Pratincole (*Glareola maldivarum*), Little Curlew (*Numenius minutus*), Whimbrel (*Numenius phaeopus*), Common Greenshank (*Tringa nubularia*), Fork-tailed Swift (*Apus pacificus*), Southern Giant Petrel (*Macronectes giganteus*), Wedge-tailed Shearwater

(*Puffinus pacificus*), Bridled Tern (*Sterna anaethetus*) and the Caspian Tern (*Sterna caspia*) (Biota Environmental Sciences, 2008).

The Pilbara Leaf-nosed Bat, Ghost Bat and Little Northern Freetail Bat may potentially forage over the application area, however, due to a lack of suitable roosting sites, the vegetation of the application area is not considered to represent significant habitat for these species. In addition the application area is not expected to support suitable habitat for the Pilbara Olive Python or the Star Finch due to a lack of free-standing water. The Banded Hare-wallaby is considered to be extinct on the mainland and the Spectacled Hare-wallaby has not been recorded in the Dampier locality since 1979 and therefore, neither of these species would be expected to occur within the application area (Biota Environmental Sciences, 2008).

The Northern Quoll (Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*) can be found in a range of areas but prefer rocky areas and eucalypt forests (Department of Environment, Water, Heritage and the Arts, 2005). During the day the species is known to hide in hollow logs, rock crevices, caves and tree hollows. Based on habitat type, this species is unlikely to use the application area as a den site due to the lack of appropriate cover and therefore the vegetation within the application area is unlikely to be significant habitat for this species.

The Lakeland Downs Mouse (DEC - Priority 4) is known to occur on sandy soils and cracking clays that support native grasses (DEC, 2006). It is known that this species experiences great fluctuations in population size depending on seasonal factors, reaching plague proportions in good years (DEC, 2006). The Lakeland Downs Mouse has been recorded from three sites in an area adjacent to the application area in similar habitat to that occurring in the application area, that is, tussock grassland of *Eragrostis xerophila* (Biota Environmental Sciences, 2008). Based on the above, this species could occur within the application area. However, given the large amount of suitable vegetation that surrounds the application area, it is unlikely that the vegetation within the application area is significant habitat for this species.

The Mulgara (Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*) is known to shelter in burrows and prefers sand dune habitats (Department of Natural Resources, Environment and the Arts, 2006). The soils within the application area are clay based and therefore, based on preferred habitat, the vegetation within the application area is unlikely to represent significant habitat for this species.

The Australian Bustard (DEC - Priority 4) is generally found in areas of tussock grassland, Triodia hummock grassland, grassy woodland and low shrublands (Department of Environment and Climate Change, 2005a) The species is known to breed on bare ground on low sandy ridges or stony rises and is dispersive with widespread movements over long distances (Department of Environment and Climate Change, 2005a). This species has been recorded within habitats near the application area and could therefore occur within the application area, however, given the widespread distribution of this species, the vegetation within the application area is not likely to be significant habitat for this species.

The Bush Stone-Curlew (DEC - Priority 4) prefers relatively undisturbed grasslands and grassy woodlands with a groundcover of fallen timber and leaf litter (Department of Environment and Climate Change, 2005b). The species is known to nest on bare ground and often returns to the same site each year (Department of Environment and Climate Change, 2005b). This species has been recorded from the Burrup Peninsula and could potentially be found within the application area. However, the habitat type found within the application area is well represented on a regional scale and therefore, the vegetation within the application area is unlikely to be significant habitat for this species.

The Eastern Curlew (DEC - Priority 4) is a migratory species that is found on intertidal mudflats and sandflats, often with beds of seagrass, on sheltered coasts, especially estuaries, mangrove swamps, bays, harbours and lagoons (Australian Museum, 2006). The species feeds primarily upon small crabs and molluscs (Australian Museum, 2006). Based on preferred habitat and diet, the vegetation within the application area is unlikely to represent significant habitat for this species.

The Peregrine Falcon (Schedule 4 - Other specially protected fauna, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*) is known to inhabit most areas in Australia and utilises cliffs, tall trees and granite outcrops for nesting (Australian Museum, 2007). The vegetation within the application area is mainly low-lying shrubs and tussock grasslands spread over a relatively flat, low-lying landscape and therefore, based on preferred habitat, the vegetation within the application area is unlikely to represent significant habitat for this species.

The Rainbow Bee-eater (Migratory species under the *Environmental Protection and Biodiversity Conservation Act, 1996*) is able to utilise a wide range of habitat types and nests in sandy soils (Australian Museum Online, 2006). Although this species may utilise the application area for feeding, it is unlikely to nest within the application area due to the absence of sandy soils. Therefore, the vegetation within the application area is unlikely to represent significant habitat for this species.

The Western Pebble-mound Mouse (DEC - Priority 4) colonies generally occur on gentler slopes of rocky ranges where the ground is covered by a stony mulch and vegetated by hard spinifex, often with an overstorey of eucalypts and scattered shrubs (Van Dyck and Strahan, 2008). Mounds are often sited close to narrow

ribbons of Acacia-dominated scrub that grow along incised drainage lines (Van Dyck and Strahan, 2008). A survey of the application area did not uncover any mounds and based on habitat type this species would not be expected to occur within the application area. The application area is therefore not likely to be significant habitat for this species.

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

Methodology Australian Museum (2006)
Australian Museum (2007)
Australian Museum Online (2006)
Biota Environmental Sciences (2008)
DEC (2006)
Department of Environment, Water, Heritage and the Arts (2005)
Department of Environment and Climate Change (2005a)
Department of Environment and Climate Change (2005b)
Department of Natural Resources, Environment and the Arts (2006)
Van Dyck and Strahan (2008)
Western Australian Museum (2008)

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

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

According to available databases, no Threatened Flora species occur within the application area (GIS Database). Flora surveys were conducted over the application area by Biota Environmental Sciences in March and April, 2008 (Hamersley Iron, 2008). No Threatened Flora were recorded within the application area (Biota Environmental Sciences, 2008).

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

Methodology Biota Environmental Sciences (2008)
Hamersley Iron (2008)
GIS Database:
- Threatened and Priority Flora

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

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

There are no known Threatened Ecological Communities (TEC's) within the application area (GIS Database). The vegetation survey of the application area did not identify any vegetation communities as being a TEC (Biota Environmental Sciences, 2008).

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

Methodology Biota Environmental Sciences (2008)
GIS Database
- Threatened Ecological Sites Buffered

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

Comments Proposal is not at variance to this Principle

The application area falls within the IBRA Pilbara Bioregion. Shepherd (2009) report that approximately 99.9% of the pre-European vegetation still exists in this Bioregion (see table below). The vegetation in the application area is recorded as Beard Vegetation Association 589: Mosaic: Short bunch grassland - savanna / grass plain / Hummock grasslands, grass steppe; soft spinifex (GIS Database; Shepherd, 2009). According to Shepherd (2009) approximately 99.9% of this vegetation association remains within the Bioregion (see table below).

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

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% of Pre-European area in IUCN Class I-IV Reserves (and current %)
IBRA Bioregion – Pilbara	17,804,193	17,785,001	~99.9	Least Concern	6.3
Beard veg assoc. – State					
589	809,754	809,637	~99.99	Least Concern	1.6
Beard veg assoc. – Bioregion					
589	730,718	730,683	~99.9	Least Concern	1.8

* Shepherd (2009)

** Department of Natural Resources and Environment (2002)

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

Methodology Shepherd (2009)
Department of Natural Resources and Environment (2002)
GIS Database
- 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

The application area is located in a semi-desert-tropical region, with an average annual rainfall of approximately 300mm falling mainly during the summer months, and an average annual evaporation rate of approximately 2,500mm (ANRA, 2007). Hence, the presence of surface water resulting from significant rain events is relatively short-lived.

A minor creek line runs through the application area (GIS Database). Based on the above, the creekline is expected to be dry except following heavy rainfall which is usually associated with tropical cyclones events (ANRA, 2007).

The area is also located near a coastal salt flat; an area of inundation. This area is highly modified due to salt works and a large proportion of it consists of drains and evaporators (GIS Database). Hence, the proposed clearing is not likely to have a significant impact on this wetland.

Based on the above, the proposed clearing is at variance to this Principle. However, the proposed clearing is unlikely to result in any significant impact to any watercourse or wetland due to the small scale of clearing of vegetation types associated with watercourses.

Methodology ANRA (2007)
GIS Database:
- Hydrography - linear
- Natmap - 250k Series Mapping - GA 08/03 (Image)

(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 broadly mapped as falling within the Calcrete and Horseflat Land Systems (Hamersley Iron, 2008; GIS Database). Approximately 215.5ha of the application area falls within the Horseflat Land System and approximately 88ha falls within the Calcrete Land System (Hamersley Iron, 2008).

The Calcrete Land System consists of low calcrete platforms and plains supporting shrubby spinifex grasslands (Van Vreeswyk et al., 2004). This system is considered to have a low erosion risk (Van Vreeswyk et al., 2004).

The Horseflat Land System consists of gilgaied clay plains supporting tussock grasslands and minor snakewood shrublands (Van Vreeswyk et al., 2004). The non-gilgaied plains, alluvial plains and dissected slopes of this system are moderately to highly susceptible to erosion if vegetation is depleted, however, other flat units with clay soils and stony mantles are inherently resistant (Van Vreeswyk et al., 2004).

Hamersley Iron (2008) report that the application area primarily consists of both gilgaied and non-gilgaied plains. Gilgaied plains consist of self-mulching cracking clays supporting primarily tussock grasslands

dominated by Roebourne Plains Grass (*Eragrostis xerophila*), but also other grasses such as Ribbon Grass (*Chrysopogon fallax*) and Swamp Grass (*Eriachne benthamii*) (Van Vreeswyk et al., 2004). Non-gilgaied plains consist of deep red/brown non-cracking clays supporting very scattered to scattered shrublands of *Acacia xiphophila* with tussock grasses, mostly *Eragrostis xerophila* (Van Vreeswyk et al., 2004). Non-gilgaied plains are moderately to highly susceptible to erosion and therefore, based on the above, the application area may be susceptible to erosion following disturbance to the soil profile.

The area for the power station location primarily consists of the Calcrete land system which is not susceptible to erosion. Soil erosion risk within the rest of the application area will be highest if the local surface hydrology is altered, therefore, the proposed heavy access route has been situated such that disruption to surface flow is not impeded. In addition, as the application area is located in an area of low rainfall and high evaporation the presence of surface water resulting from significant rain events is relatively short-lived (ANRA, 2007).

The application area contains areas where the soil profile has a moderate to low risk of Acid Sulfate Soils (ASS) occurring within less than 3m of the natural soil surface (Western Australian Planning Commission, 2008). The amount of area to be cleared that is likely to fall within an area at risk of developing ASS would be relatively small. The clearing of vegetation is not likely to have a significant impact upon ASS however, for areas at risk of developing ASS, careful management is still required to prevent acid activation.

It has been recommended by the Department of Agriculture that before construction begins, Hamersley Iron should carry out some exploratory drilling in areas that have a risk of developing ASS. This is to establish whether or not ASS need to be managed during construction and future site management.

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

Methodology ANRA (2007)
DAFWA (2002)
Hamersley Iron (2008)
Van Vreeswyk et al. (2004)
Western Australian Planning Commission (2008)
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 closest conservation areas are a series of (mostly unnamed) A and C classed reserves on islands located approximately 15km north of the application area (GIS Database). The nearest land based conservation area is the Millstream-Chichester National Park located approximately 50km north-west of the application area (GIS Database).

Given the distance of the application area from any conservation areas, the removal of 47.5ha of native vegetation is not expected to have an impact on the environmental values of these 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 majority of the western Pilbara region, including the application area, has limited surface freshwater (Department of Environment and Conservation, 2006). Freshwater flows are highly variable, characterised by short periods of very high flow that coincide with major rainfall events usually associated with tropical cyclone activity (Department of Environment and Conservation, 2006). In addition, due to the low rainfall and high evaporation rate of the region, the presence of surface water resulting from significant rain events is relatively short-lived (ANRA, 2007).

Within the application area and surrounding region there is little readily accessible groundwater. Hence, industry in the region is increasingly dependant on desalinated seawater (Department of Environment and Conservation, 2006). Therefore, the proposed clearing is not likely to have a significant impact on surface or ground water quality, or groundwater levels.

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

Methodology ANRA (2007)
Department of Environment and Conservation (2006)

GIS Database:
- Topographic contours - statewide

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

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

The application area experiences an arid, tropical climate with a wet summer season and a dry winter season (ANRA, 2007). Most rainfall is received during the wet season, but falls can be variable (ANRA, 2007). Rain can either be sporadic (local thunderstorms) or heavy and intense (cyclonic events). It is likely that during times of intense or sporadic rainfall, flooding of the low-lying clayey habitat in the application area would occur (Biota Environmental Sciences, 2008). However, the clearing of 47.5ha of native vegetation, in comparison to the size of the Port Hedland Coastal catchment area (744,301.7ha), is not likely to lead to an increase in the incidence or intensity of flooding.

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

Methodology ANRA (2007)
Biota Environmental Sciences (2008)
GIS Database:
- Geodata - lakes
- Hydrographic Catchments - Catchments

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

Comments

Clearing permit CPS 2546/1 was granted by the Department of Industry and Resources (now Department of Mines and Petroleum) on 7 August 2008 and was valid from 6 September 2008 to 31 July 2013. The clearing permit authorised the clearing of 40.5 hectares within an area of 303 hectares.

Clearing permit amendment applications CPS 2546/2 and CPS 2546/3 were withdrawn and declined respectively.

The proponent has requested an amendment to increase the area authorised to clear by an additional 7 hectares, increasing the area authorised to clear to 47.5 hectares. The clearing permit boundary will remain the same. The proposed amendment is to allow for the installation of a fifth generating turbine and associated infrastructure.

The additional clearing has the potential to increase the impacts upon the PEC within the application area. However, given that the PEC will be fenced off from cattle grazing, the additional clearing of the PEC is not expected to have significant impacts. The proposed amendment is not likely to have any other significant environmental impacts.

There is one native title claim (WC99/014) over the area under application. This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the tenement has been granted in accordance with the future act regime of *the Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are several Aboriginal Sites of Significance within the vicinity of the application area (GIS Database). Hamersley Iron (2008) have undertaken a heritage survey of the application area and will avoid any Sites of Significance. It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no 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 clearing permit amendment was advertised on 26 December 2011 by the Department of Mines and Petroleum inviting submissions from the public. There was one submission received stating no objections to the proposed amendment.

Methodology Hamersley Iron (2008)
GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims

4. References

- ANRA (2007). Rangelands overview: Pilbara [online]. Available from: <http://www.anra.gov.au/tropics/rangelands/overview/wa/ibra-pil.html>. Accessed 3 July, 2008.
- Australian Museum (2006). Eastern Curlew [online]. Available from: <http://www.birdsinbackyards.net/finder/display.cfm?id=237>. Accessed 16 July, 2008.
- Australian Museum (2007). Birds, Peregrine Falcon [online]. Available from: http://www.austmus.gov.au/wild_kids/birds/perigrine_falcon.htm Accessed 3 July, 2008.
- Australian Museum Online (2006). Rainbow Bee-eater [online]. Available from: <http://www.birdsinbackyards.net/finder/display.cfm?id=174>. Accessed 16 July, 2008.
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5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government.
CALM	Department of Conservation and Land Management, Western Australia.
DAFWA	Department of Agriculture and Food, Western Australia.
DA	Department of Agriculture, Western Australia.
DEC	Department of Environment and Conservation
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DoE), Western Australia.
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia.
DoE	Department of Environment, Western Australia.
DoIR	Department of Industry and Resources, Western Australia.
DOLA	Department of Land Administration, Western Australia.
DoW	Department of Water
EP Act	Environment Protection Act 1986, Western Australia.
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System.
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	Rights in Water and Irrigation Act 1914, Western Australia.
s.17	Section 17 of the Environment Protection Act 1986, Western Australia.
TECs	Threatened Ecological Communities.

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.

