



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 1135/3
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Pilbara Chromite Pty Ltd

1.3. Property details

Property: Mining Lease 52/791
Mining Lease 52/798
Local Government Area: Shire of Meekatharra
Colloquial name: Coobina Alluvial Mine

1.4. Application

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

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 and are useful to look at vegetation extent in a regional context. Two Beard Vegetation Associations are located within the application area (GIS Database):</p> <p>Beard Vegetation Association 216: Low woodland; Mulga (with spinifex) on rises.</p> <p>The application area is dominated by Acacias, particularly Mulga (<i>Acacia aneura</i> group), with a mixture of <i>Senna</i> and <i>Eremophila</i> species forming the shrub layer. Hummock grasses (particularly <i>Triodia</i>) form the ground layer (MBS Environmental, 2006a).</p> <p>Morgan (2006) conducted a vegetation survey of the application area in November 2005. The survey recorded 158 native flora species from 35 families. No Declared Rare Flora (DRF) or Priority Flora species were recorded during this survey. One weed species was found in the area: Buffel Grass (<i>Cenchrus ciliaris</i>).</p> <p>The flora and vegetation survey identified 4 broad landform types. These were: creeklines, colluvial spurs, very gently sloping alluvial plains, and loamy clay/clay soils. Nine vegetation units were described from these landform types (Morgan, 2006).</p> <p>Vegetation of the creeklines:</p> <p>1). <i>Eucalyptus gamophylla</i> scattered low trees over <i>Acacia ancistrocarpa</i> open shrubland over <i>Dicrasyllis georgei</i>, <i>Keraudrenia velutina</i> subsp. <i>elliptica</i> low open shrubland over <i>Paraneurachne muelleri</i>, <i>Eragrostis</i> aff. <i>eriopoda</i>, <i>Triodia</i> aff. <i>basedowii</i>, <i>Amphipogon sericeus</i> (Newman form) open hummock grassland and open grassland.</p>	<p>The application is to clear up to 85 hectares, within a defined area of approximately 105 hectares. The proposed clearing is for the mining of shallow alluvial gravels to the south of the existing mining operations.</p> <p>Land cleared under this proposal will be progressively rehabilitated behind mining activities (MBS, 2006a).</p>	<p>Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).</p>	<p>The Coobina Chromite operations currently consist of 11 open pit mines, associated waste dumps, haul and access roads, and other mining infrastructure (MBS Environmental, 2006a).</p> <p>The area applied to clear falls within the Sylvania Pastoral Lease and has a long history of disturbance from pastoral activities (MBS Environmental, 2006a; GIS Database). Since the 1970's the vegetation of the Coobina area has been exposed to mining disturbances. Consequently, some of the vegetation at the Coobina site is very degraded, however other vegetation is in very good condition and shows few signs of disturbance (MBS Environmental, 2006a).</p> <p>Clearing permit application CPS 1135/1 was granted on 9 November 2006. Clearing of up to 85 hectares of native vegetation was authorised for the purposes of alluvial chromite mining.</p> <p>CPS 1135/1 was amended on 2 October 2008 to include 'construction of mining and minerals beneficiation infrastructure' as a purpose for which the clearing may be done.</p>

2). *Acacia paraneura*, *Corymbia hamersleyana*, *Acacia pruinocarpa* scattered low trees over *Petalostylis labicheoides*, *Gossipium robinsonii* high shrubland over *Senna artemisioides* subsp. *oligophylla* scattered shrubs over *Corchorus lasiocarpus* subsp. *lasiocarpus*, *Tephrosia rosea* var *glabrior* scattered low shrubs over *Triodia pungens*, *Cymbopogon ambiguus*, *Eriachne mucronata* (typical form), *Paraneurachne muelleri*, *Themeda triandra* open grassland/hummock grassland.

3). *Acacia paraneura*, *Acacia pruinocarpa*, *Corymbia hamersleyana* low open woodland over *Acacia bivenosa*, *Acacia aff. stowardii* (linear form), *Acacia ancistrocarpa* high open shrubland to high shrubland over *Triodia pungens*, *Cymbopogon ambiguus*, *Paraneurachne muelleri*, *Eriachne mucronata* (typical form) open hummock grassland/grassland (Morgan, 2006).

Vegetation of the colluvial spurs:

4). *Corymbia hamersleyana* scattered low trees over *Acacia orthocarpa* wispy variant, (*Acacia trudgeniana*, *Hakea lorea* ssp. *lorea*) scattered tall shrubs over *Triodia aff. basedowii* hummock grassland.

5). *Eucalyptus gamophylla*, *Acacia tetragonophylla*, *Acacia paraneura* scattered low trees to low open woodland over *Acacia orthocarpa* wispy variant, *Acacia trudgeniana*, *Acacia bivenosa* scattered tall shrubs over *Senna artemisioides* subsp. *helmsii*, *Senna glutinosa* subsp. *x luerssenii* scattered shrubs over *Triodia aff. basedowii*, *Amphipogon sericeus* (Newman form) hummock grassland/grassland with *Chrysocephalum pterochaetum* scattered herbs.

6). *Eucalyptus gamophylla* scattered low trees over *Acacia trudgeniana*, *Hakea lorea* subsp. *lorea* scattered tall shrubs over *Triodia aff. basedowii* hummock grassland (Morgan, 2006).

Vegetation of the very gently sloping alluvial plains:

7). *Eucalyptus gamophylla*, *Acacia aff. aneura* (narrow fine veined), *Acacia pruinocarpa* low open woodland to low woodland over *Acacia bivenosa*, *Acacia dictyophleba* open shrubland over *Dicrasyllis georgei*, *Indigofera monophylla* (small leaflet form) low open shrubland over *Paraneurachne muelleri*, *Eragrostis aff. eriopoda*, *Aristida holathera* var. *holathera*, *Triodia basedowii* grassland/hummock grassland with *Scaevola parvifolia* subsp. *pilbarae*, *Bonamia rosea* very open hermland.

Vegetation of the loamy clay/clay soils:

8). *Acacia paraneura*, *Acacia pruinocarpa* low woodland to low open forest over *Eremophila latrobei* subsp. *aff. filiformis*, *Senna glutinosa* subsp. *x luerssenii* scattered tall shrubs over *Indigofera monophylla* (small leaflet form), *Corchorus lasiocarpus* subsp. *lasiocarpus* scattered low shrubs over *Triodia aff. basedowii*, (*Eragrostis aff. eriopoda*, *Aristida contorta*, *Amphipogon sericeus* (Newman form) open hummock grassland/grassland.

9). *Acacia paraneura*, *Acacia pruinocarpa*, (*Corymbia hamersleyana*) low open woodland over *Hakea lorea* subsp. *lorea* scattered tall shrubs *Senna artemisioides* subsp. *oligophylla* scattered shrubs over *Solanum lasiophyllum* scattered low shrubs over *Aristida contorta*, *Eragrostis aff. eriopoda*, *Paraneurachne muelleri*, *Triodia pungens* open grassland/hummock grassland with *Actinobole uliginosum*, *Chrysocephalum apiculatum* very open hermland (Morgan, 2006).

Pilbara Chromite Pty Ltd are seeking an amendment to CPS 1135/2 for the purposes of removing a condition to which the permit is subject. Specifically, Pilbara Chromite Pty Ltd are seeking to remove Condition 3 which states "the Permit Holder shall not clear any native vegetation within the area shaded red on attached Plan 1135/2".

The area shaded red on attached Plan 1135/2 is an ephemeral creek which runs diagonally north-west to south-east through the area approved to clear. Pilbara Chromite Pty Ltd have identified economic deposits of chromite within the drainage line and also plan to construct waste rock dumps in this area as part of future mine development.

In assessing the proposed amendment, the relevant Clearing Principles have been addressed and it is considered that the variance level for Principle (f) has increased from "not likely to be at variance" for CPS 1135/2 to "at variance" for CPS 1135/3. Variance levels for the remainder of the Clearing Principles remain unchanged from those previously assigned. It is unlikely that significant adverse environmental impacts will result should the proposed amendment be granted.

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 is located within the Sylvania Pastoral Lease, and has a long history of disturbance from

grazing (GIS Database; MBS Environmental, 2006c). More recently, the Coobina area has been disturbed by mining activities, with mining becoming the dominant land use since the 1970's (MBS Environmental, 2006a). There are numerous abandoned mines in the surrounding area, and the clearing application area is immediately adjacent to an operational minesite (GIS Database; MBS Environmental, 2006a). The condition of the vegetation in the application area ranges from very good to severely degraded (MBS Environmental, 2006a).

A survey of the application area was conducted in November 2005, and concluded that the vegetation proposed to clear is of low to moderate diversity (Morgan, 2006). Given the availability of similar habitat in the surrounding area, it appears unlikely that the area proposed to be cleared consists of significant habitat for flora or fauna (Department of Environment and Conservation {DEC}, 2006).

There are no known Threatened Ecological Communities (TEC's) within a 50 kilometre radius of the application area, and no flora or fauna species of conservation significance are known to occur within the vicinity of the proposed clearing area (GIS Database; MBS Environmental, 2006a).

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

Methodology DEC (2006)
MBS Environmental (2006a)
Morgan (2006)
GIS Database:
- Declared Rare and Priority Flora List
- Natmap 250K Series Mapping (Image)
- Threatened Ecological Communities
- Pastoral Leases
- Pre-European Vegetation
- Threatened Fauna

(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

MBS Environmental (2006b) described 4 typical habitats within the application area and the wider Coobina region: Rocky ridges with spinifex and scattered shrubs, scree and outwash fans with sparse spinifex, creeklines with dense shrubs, and Mulga woodlands and shrub thickets. These habitats are common in the Gascoyne, Pilbara and other extensive arid regions of Australia (MBS Environmental, 2006b).

MBS Environmental conducted a desktop search of CALM's Threatened Fauna Database, and the Commonwealth's Department of the Environment and Heritage (DEH) Database in 2006 to determine which fauna species of conservation significance may potentially occur within the application area. The search identified the following 4 species: Bilby, *Macrotis lagotis* (VU), Western Pebble-mound Mouse, *Pseudomys chapmani* (P4), Australian Bustard, *Ardeotis australis* (P4), Pilbara Leaf-nosed Bat, *Rhinonictis aurantius* (VU), and 4 migratory bird species: Oriental Plover/Oriental Dotterel, *Charadrius veredus*; Rainbow Bee-eater, *Merops ornatus*; Great Egret/White Egret, *Ardea alba*; and Cattle Egret, *Ardea ibis* (MBS Environmental, 2006b).

A vegetation survey of the proposed clearing area by Morgan (2006) in November 2005 revealed the existence of *Triodia* Hummock grassland, mulgas and other shrublands which would provide suitable habitat for the Australian Bustard. This species has been previously sighted in the area within the Sylvania Pastoral station (MBS Environmental, 2006b). However, the habitat required by the Australian Bustard is common to the Gascoyne Region, therefore the proposed clearing is unlikely to result in a loss of significant habitat.

MBS Environmental concluded that the Western Pebble-mound Mouse may potentially occur on the rocky slopes of the Coobina Hills, although the vegetation associations on the hills would not provide the most suitable habitat. The Western Pebble-mound Mouse occurs widely throughout the Pilbara rangelands, and it is therefore unlikely that the proposed clearing will result in a loss of significant habitat for the Western Pebble-mound Mouse (MBS Environmental, 2006b).

MBS Environmental (2006b) concluded that the Hummock and Tussock grasslands and the mulga and other shrublands within the application area provide suitable habitat for the Bilby. However, there is no evidence to suggest that the Bilby has been recorded from the Coobina area (MBS Environmental, 2006b). The proposed clearing is unlikely to have a significant impact upon the Bilby considering the extent of similar habitats available in surrounding areas.

The Pilbara Leaf-nosed Bat is listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*. This is largely a result of a loss of roost sites (MBS Environmental, 2006b). This species has a limited distribution, with only 10 known roost sites in the Pilbara and 1 in the Gascoyne (MBS Environmental, 2006b). Although there may be some small caves providing suitable roost sites in the Coobina Hills area, these will not be impacted upon by the proposed clearing. Therefore it is unlikely that the proposal will impact upon the Pilbara Leaf-nosed Bat.

The Oriental Plover/Oriental Dotterel prefers open grassland environments in arid and semi- arid areas (MBS Environmental, 2006b). It is a wide ranging species and has been known to migrate to Indonesia, New Zealand and Australia during the southern summer (MBS Environmental, 2006b). The Oriental Plover/Oriental Dotterel is unlikely to be significantly impacted upon by the proposal as there is a large amount of similar habitat within the Gascoyne Bioregion, and the species is only a seasonal visitor to the site (if a visitor at all).

The preferred habitat for the Rainbow Bee-eater is along watercourses (MBS Environmental, 2006b). As there are no permanent watercourses within the application area it is unlikely that the Rainbow Bee-eater will be affected by the proposed clearing.

The Great Egret/White Egret is unlikely to visit the Coobina area as it prefers habitats with permanent water bodies. It is more likely that this species uses the site as a fly-over area rather than a place to establish a habitat (MBS Environmental, 2006b).

The Cattle Egret is an infrequent visitor to Western Australia and prefers damp pastures and wetlands, usually in the presence of cattle (MBS Environmental, 2006b). It is therefore unlikely to occur in the area.

Although there are likely to be some local impacts from habitat loss and fragmentation, the vegetation associations and fauna habitats occurring within the application area are all well represented in the region (MBS Environmental, 2006a). According to the Department of Environment and Conservation, it appears unlikely that the area proposed to be cleared consists of significant habitat for fauna (2006).

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

Methodology DEC (2006)
MBS Environmental (2006a)
MBS Environmental (2006b)
Morgan (2006)

(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

There are three known populations of *Lepidium catapycnon* (R), approximately 65 kilometres west/northwest of the Coobina area (GIS Database). These are the nearest known populations of Declared Rare Flora (DRF). The vegetation associations of the area applied to clear are well represented on a local and regional scale (MBS Environmental, 2006a). It is highly unlikely that they would be necessary for the continued existence of rare flora.

DEC databases record one Priority Flora species within a 50 kilometre radius of the application area (MBS Environmental, 2006a). *Eremophila pilosa* (P1) has been recorded from two areas in the south-east corner of the nearby Fortescue Botanical District (MBS Environmental, 2006a). A vegetation survey conducted by Morgan (2006) in November 2005 did not find *Eremophila pilosa* or any other DRF or Priority Flora species within the area applied to clear. It should also be noted that a vegetation survey conducted by Martinick McNulty Pty Ltd in 2001 also did not find *Eremophila pilosa* or any other DRF or Priority Flora in the Coobina area (MBS Environmental, 2006a).

The area applied to clear does not include any known populations of DRF or Priority Flora and the proposed clearing is unlikely to have any impact upon the continued existence of such flora.

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

Methodology MBS Environmental (2006a)
Morgan (2006)
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

There are no known TEC's within the vicinity of the proposed clearing area (GIS Database). According to DEC (2006), there is no evidence to suggest that TEC's occur in the area. The nearest known TEC is the Ethel Gorge aquifer stygobiont community, which is approximately 50 kilometres to the north-west of the application area (GIS Database). It is unlikely that the proposed clearing will have an impact upon this TEC considering its distance from the area applied to clear.

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

Methodology DEC (2006).

GIS Database:
 - Threatened Ecological Communities

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

Comments Proposal is not at variance to this Principle

The application area falls within the IBRA Gascoyne Bioregion (GIS Database). Shepherd (2007) reported that approximately 100% of the Pre-European Vegetation still exists within the IBRA Gascoyne Bioregion. The vegetation of the area applied to clear is classified as Beard Vegetation Association 216: Low woodland, Mulga (with spinifex) on rises (GIS Database). There is approximately 100% of this vegetation type remaining (Shepherd, 2007). The area proposed to clear does not represent a significant remnant of vegetation in 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 – Gascoyne	18,075,218	18,075,218	~100	Least concern	1.93
Beard veg assoc. – State					
216	280,759	280,759	~100	Least concern	No information available
Beard veg assoc. Gascoyne Bioregion					
216	254,090	254,090	~100	Least concern	No information available

* Shepherd (2007)

** 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 (2007)
 GIS Database:
 - Interim Biogeographic Regionalisation of Australia
 - Pre - European Vegetation

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

Comments Proposal is at variance to this Principle

A minor seasonal creek runs diagonally through the application area. This creekline was excluded from the area approved to clear under the original permit to maintain natural surface water flow regimes. However, the proponent has now requested an amendment to the permit to allow clearing of the creekline.

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

None of the vegetation associations growing in, or in association with, the creek are listed as Threatened Ecological Communities or ecosystems at risk (CALM, 2002). The fine scale vegetation associations identified by Morgan (2006) cannot be compared directly with other vegetation communities in the local area due to a lack of statistical data, however in a broader sense the vegetation associations at Coobina are similar to others found throughout the Fortescue Botanical District (Morgan, 2006).

MBS Environmental (2009) note that the upper catchment of the creek system has been cut off by previous mining activities and the existing drainage line makes no significant contribution to surface drainage of the colluvial/alluvial plain. In addition, the creekline proposed to clear makes no direct surface connection with the much larger Caramulla Creek system located south of the Coobina mining operations (MBS Environmental, 2009).

Should the proposed amendment be granted, there will be a loss of vegetation growing in association with a watercourse. However, this is not likely to be deemed an unacceptable loss on the basis of available information.

Methodology CALM (2002)
 MBS Environmental (2006a)

MBS Environmental (2009)
Morgan (2006)
GIS Database:
- Hydrography, linear

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

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

The proposed clearing area is within the Sylvania land system on the elevated Coobina Hills complex (DAFWA 2006; MBS Environmental, 2006a). The soils here are predominantly shallow red and brown loams, protected to some degree by a stony surface mantle (DAFWA 2006; MBS Environmental, 2006a).

DAFWA (2006) have advised that soil erosion is likely to occur after clearing and disturbance if surface water run off is not managed. This risk will be minimized by the progressive rehabilitation of the alluvial pits post mining.

MBS Environmental (2006a; 2009) have outlined the following management strategies which will be implemented to manage surface water flows and minimise erosion:

Pilbara Chromite will install bunding in the north-western portion of the creek area to ensure surface water flows are diverted south, as opposed to the natural south-east orientation. Bunding will ensure that surface flows are diverted away from mining infrastructure and towards Caramulla Creek (MBS Environmental, 2009);

Topsoil will be respread over reinstated areas and deep ripped along the contour to establish stony, well drained, stable and non-erosive surfaces. Where possible, stockpiled vegetation will be spread over the rehabilitated area to further minimise erosion and encourage regrowth of stabilising vegetation;

MBS Environmental (2006a) lists a number of additional strategies which will be employed to minimise land degradation in general:

Topsoil stripping will be conducted during periods of low winds;
Topsoil will be stockpiled for use in rehabilitation;
Establishing vegetation on bare surfaces on completion of mining activities; and
Vehicles will be confined to existing tracks and haul roads.

The implementation of such management strategies will ensure that land degradation issues such as wind erosion, water erosion and soil compaction are adequately addressed.

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

Methodology DAFWA (2006)
MBS Environmental (2006a)
MBS Environmental (2009)

(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

There are no conservation areas in close proximity to the application area (GIS Database). The nearest DEC managed land is the Collier Range National Park which lies approximately 125km to the southwest (GIS Database). Therefore it is unlikely that the proposal will have any impact upon conservation areas and their associated environmental values.

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

An ephemeral creek, forming part of the Caramulla Creek System, runs diagonally through the application area (GIS Database). This creek forms part of the much larger Upper Fortescue River Catchment (GIS Database).

Pilbara Chromite will install bunding in the north-western portion of the creek area to ensure surface water flows are diverted south, as opposed to the natural south-east orientation. Bunding will ensure that surface flows are diverted away from mining infrastructure and towards Caramulla Creek (MBS Environmental, 2009).

MBS Environmental (2009) note that the upper reach of the drainage line begins at the base of the Coobina Hills, draining southwards over the adjoining plain. The upper catchment of the existing creek system has been cut off by previous mining activities and the existing drainage line makes no significant contribution to surface drainage of the colluvial/alluvial plain (MBS Environmental, 2009).

The drainage channel being sought to clear as part of this clearing permit amendment application is a semi-confined primary channel in its upper reaches. The channel bed becomes shallower and broader, bifurcating as the gradient decreases, into many sub-channels of smaller dimension. Ultimately, the drainage line dissipates onto the broad floodplain, making no direct surface connection with the much larger Caramulla Creek system located south of the Coobina mining operations (MBS Environmental, 2009).

The assessing officer has undertaken analysis of aerial photography and satellite imagery to substantiate information provided by MBS Environmental (2009). Photographs of the drainage line were also provided by other DMP staff who have visited the Coobina mining operations. The assessing officer is satisfied that information provided by MBS Environmental (2009) is accurate and sufficient to assess the impact of the proposed amendment on surface water quality. On this basis, it is unlikely that clearing this drainage line will result in significant downstream impacts to surface water quality.

The groundwater of the area is monitored bi-annually using the Coobina Mine Bore which is located within the project area. Water levels in the bore range between 8.98 and 20.95 metres depth. The groundwater is categorized as brackish (2,550mg/L total dissolved solids), with a pH ranging between 7.36 and 7.51 (MBS Environmental, 2006a). No dewatering is required for the mining operation, and the removal of 85 hectares of vegetation is unlikely to have any significant impact upon groundwater levels or quality. The proponent will continue to monitor groundwater quality parameters in accordance with their current groundwater licence (MBS Environmental, 2006a).

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

Methodology MBS Environmental (2006a)
MBS Environmental (2009)
GIS Database:
- Hydrographic Catchments - Catchments
- Hydrography, linear

(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 average annual rainfall of the proposed clearing area is 270 millimetres, with annual evaporation rates in the range of 3,800 millimetres (MBS Environmental, 2006a). Rainfall not lost to evaporation usually infiltrates below the ground surface. Most precipitation occurs between December and March and is primarily associated with cyclonic activity and thunderstorms (MBS Environmental, 2006a). As a result of this, the drainage channels in the area only flow following significant rainfall events and remain dry for most of the year (MBS Environmental, 2006a). Localised flooding is occasionally associated with intense seasonal rainfall in the area (MBS Environmental, 2006a).

Anecdotal evidence suggests that the drainage line sought to clear as part of this clearing permit amendment application has not been known to flow since Pilbara Chromite commenced mining at Coobina in January 2002 (MBS Environmental, 2009). Any surface water flows generated from major storm events will be directed south of mining operations towards Caramulla Creek via the use of bunding (MBS Environmental, 2009).

On this basis, it is considered unlikely that the proposed amendment will cause, or exacerbate, the incidence or intensity of flooding.

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

Methodology MBS Environmental (2006a)
MBS Environmental (2009)

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

Comments

There is one native title claim over the area under application; WC05/006 . This claim has been registered with the National Native Title Tribunal on behalf of the claimant group (GIS Database). However, the mining tenements have 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 no known sites of aboriginal significance within the area applied to clear (GIS Database). It is the

proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

Pilbara Chromite Pty Ltd has a current operating licence 7753 granted in accordance with the *Environmental Protection Act 1986*. The proposed clearing is not at variance to this licence, and no amendment to the licence will be required for the proposed works (DoE, 2006).

Pilbara Chromite Pty Ltd has a current groundwater licence GWL107191(4) for the purpose of dust suppression, ore processing and mining camp purposes granted in accordance with the *Rights in Water and Irrigation Act 1914* (DoE, 2006). There appear to be no water allocation or licencing issues that would preclude the process for the native vegetation clearing permit assessment (DoE, 2006).

It is the proponent's responsibility to liaise with the Department of Water to determine whether a Bed and Banks Permit is required for the proposed works.

Clearing permit application CPS 1135/1 was granted on 9th November 2006. Clearing of up to 85 hectares of native vegetation was authorised for the purposes of alluvial chromite mining.

CPS 1135/1 was amended on 2 October 2008 to include 'construction of mining and minerals beneficiation infrastructure' as a purpose for which the clearing may be done.

Pilbara Chromite Pty Ltd are seeking an amendment to CPS 1135/2 for the purposes of removing a condition to which the permit is subject. Specifically, Pilbara Chromite Pty Ltd are seeking to remove Condition 3 which states "the Permit Holder shall not clear any native vegetation within the area shaded red on attached Plan 1135/2".

The area shaded red on attached Plan 1135/2 is an ephemeral creek which runs diagonally north-west to south-east through the area approved to clear. Pilbara Chromite Pty Ltd have identified economic deposits of chromite within the drainage line and also plan to construct waste rock dumps in this area as part of future mine development.

In assessing the proposed amendment, the relevant Clearing Principles have been addressed and it is considered that the variance level for Principle (f) has increased from "not likely to be at variance" for CPS 1135/2 to "at variance" for CPS 1135/3. Variance levels for the remainder of the Clearing Principles remain unchanged from those previously assigned. It is unlikely that significant adverse environmental impacts will result should the proposed amendment be granted.

Methodology DoE (2006)
GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims

4. Assessor's comments

Comment

The amended proposal has been assessed against the Clearing Principles, and the proposed clearing is at variance to Principle (f), is not likely to be at variance to Principles (a), (b), (c), (d), (g), (h), (i) or (j), and is not at variance to Principle (e).

Should a clearing permit be granted, it is recommended that conditions be imposed for the purposes of record keeping and permit reporting.

5. References

- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Gascoyne 3 (GAS 3 Augustus subregion).
- DAFWA Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia.
- DEC (2006) Land clearing proposal advice. Advice to Native Vegetation Assessor, Native Vegetation Assessment Branch, Department of Industry and Resources. Biodiversity Coordination Section, Department of Environment and Conservation. Perth, Western Australia.
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6. 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, Western Australia.
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.
DMP	Department of Mines and Petroleum, Western Australia.
DoE	Department of Environment, Western Australia.
DoIR	Department of Industry and Resources, Western Australia.
DOLA	Department of Land Administration, Western Australia.
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.
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- 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.