Department of Environment and Conservation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2091/1

Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Phosphate Resources Limited (Christmas Island Phosphates)**

1.3. Property details

Property: UNALLOCATED CROWN LAND (CHRISTMAS ISLAND 6798)

Local Government Area: Shire Of Christmas Island

Colloquial name: ML111A phosphate mining

1.4. Application

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

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
ML132: ML132 (LB7C block 1) This area has intact vegetation that has not been disturbed for an estimated time of 25 years. Classified by Mitchell (1974) has closed forest on shallow soil and recognised as climax edaphic vegetation.	The areas under application are for the purpose of mining. ML132 covers 0.95ha ML132 (LB7C block 1) is a well vegetated area of regrowth that has not been previously cleared by CIP. The vegetation consists of climax rainforest species and suitable habitat for seabirds.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	Vegetation condition was determined through aerial mapping and Site Visits (2007)
ML101 and ML128 ML101 (17C, 17 central blocks 1 and 2) and ML128 (LB1-MB1) Completely degraded: No longer intact; completely/almost completely without native species. The edges of ML101 17C consists of transitional vegetation with stands of Macaranga tanarius and some Pandanus elatus.	The areas under application are for the purpose of mining. Total area of 41.01 Ha. ML128: Much of the proposed clearing on this site will be undertaken on previously cleared areas with regrowth, primarily dominated by weed species. Site visits, photographs and aerial photography indicate that the vegetation condition is degraded. The area is surrounded by nesting seabird colonies. ML128 covers 0.77ha ML101: ML101 (17C, 17 central blocks 1 and 2) the area of 17 central blocks 1 and 2	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	Vegetation condition was determined through aerial mapping and Site Visits (2007)

have already been cleared. The area of 17C consists of previously cleared areas with regrowth, where it is dominated by weeds for the majority of the area, with well vegetated areas on the side that is about 15 years old and consists of transitional vegetation.

ML101 (17C) covers 7.44ha

ML101 (17cb 1) covers 14.63ha

ML101 (17cb 2) covers 17.26ha

3. Assessment of application against clearing principles

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

Comments

Proposal is at variance to this Principle

The clearing of native vegetation under application is for the purpose of mining.

ML132 (LB7C Block 1):

The proposed clearing on ML132 (LB7C block 1) comprises intact vegetation that has not been disturbed for an estimated period of 25 years. The area was likely to have been cleared initially and significant regrowth has occurred. The adjacent areas are classified by Mitchell (1974) has closed forest, shallow soil and recognised as climax edaphic vegetation.

Advice from Parks Australia Christmas Island (2007) states that the northern corner of the site contained the most significant vegetation of all the sites. It contains climax rainforest and seabird nesting habitat (Parks Australia Christmas Island, 2007).

The Christmas Island Frigatebird is likely to occur within the application area (ML132) and it is considered undesirable to clear within 300m of a nesting colony. (Hill & Dunn, 2004). In addition the Emerald Dove and Christmas Island Goshawk may occur within this area (ML132).

Previous advice from Park Australia (2007) indicates that Declared Rare Flora may exist in the area under application as it is in very good condition.

This portion of land is adjacent to unallocated crown land that has not been cleared and represents a corridor linkage.

This area is considered to hold high biological diversity due to the presence of threatened fauna and the possible presence of declared rare flora; clearing of area ML132 is therefore at variance to this principle.

ML128 and ML101:

The proposed clearing on ML128 and ML101 is mostly previously cleared with regrowth, primarily dominated by weeds species. Site inspections (2007), photographs and aerial photography indicated that the vegetation condition is degraded (Keighery, 1994).

ML128 is adjacent to seabird colony nesting sites and Parks Australia (2007) advises that clearing in this area should be restricted so clearing does not occur during the seabird nesting season (May to Sept). In addition the Emerald Dove and Christmas Island Goshawk may occur within this area (ML128).

Within ML101 (Field 17, Block 1 and 2) declared rare flora Cynometra ramifolia is known to occur approximately 30m from an area subject to heavy clearing however some vegetation is retained within this area (ML101 Field 17, Block 1 and 2) and thus the recorded DRF may still occur within the area under application.

Given the significant disturbance to ML128 the area is not considered to be significant habitat for any DRF. However given the recorded presences of DRF Cynometra ramifolia close to the ML101 application area and the importance of ML132 as an ecological linkage; it is likely that application areas ML132 and ML101 have significant biological diversity in a local context and therefore the clearing as proposed maybe at variance to this principle.

Methodology

Environment Australia (2002)
Keighery (1994)

Mitchell (1974)
Parks Australia Christmas Island National Park advice (2007)
Site Inspections (2007)
GIS database:
- Christmas Island 60cm Orthomosaic - Landgate06

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments

Proposal is at variance to this Principle

The clearing of areas under application comprised of native vegetation are for the purpose of mining.

ML132:

The proposed clearing on ML132 (LB7C block 1) would be undertaken on intact vegetation that has not been disturbed for an estimated period of 25 years. The area was likely to have been cleared initially and significant regrowth has occurred. The adjacent areas are classified by Mitchell (1974) has closed forest, shallow soil and recognised as climax edaphic vegetation. Advice from Parks Australia Christmas Island (2007) states that the northern corner of the site contained the most significant vegetation of all the sites. It contains climax rainforest and seabird nesting habitat (Parks Australia Christmas Island, 2007). The proposed clearing on ML 132 (LB&C block 1) is situated on the upper terrace and can be classified into the terrace rainforest habitat (Environment Australia, 2002). The area consists of closed semi deciduous forest which is likely to support important habitat for Red-footed Booby (Sula sula rubripes), which nests in colonies in trees on parts of the shore terrace and inland terraces.

The Christmas Island Frigatebird (Freegata adrewski) is the rarest endemic seabird on Christmas Island and is listed as Vulnerable under the Environmental Protection and Biodiversity Conservation Act 1999. The National recovery Plan for the Christmas Island Frigate Bird identifies three key modern nesting sites on the Island, all located on the north eastern part of the island; the Dryers area, Cemetery area and Golf Course area (Hill & Dunn, 2004). There is limited data available on habitat requirements, thus habitat critical to survival of the Christmas Island Frigatebird is considered to be all nesting sites (Hill & Dunn, 2004). Applying the precautionary approach given the available information, clearance of vegetation within 300 metres of nesting colonies should be considered undesirable (Hill & Dunn, 2004). Further data is required on the habitat requirements for Christmas Island Frigatebird breeding (Hill & Dunn, 2004). Since settlement the nesting distribution of Christmas Island Frigatebirds has been fragmented by human development resulting in the three colonies that remain today (Hill & Dunn, 2004). Early accounts suggest that the shore terrace of Flying Fish Cove may once have been their main breeding area and they probably had an almost continuous nesting distribution along the north-eastern coast from Margaret Beaches to North East Point, and a separate colony in the sheltered area where the golf course colony is now situated (Hill & Dunn, 2004). It is estimated that approximately 90 ha of breeding habitat has been cleared since settlement (Hill & Dunn, 2004).

Since the proposed area to clear is on the north eastern part of the island on the upper terraces it is likely to support habitat required for Christmas Island Frigatebird nesting.

ML101 (17C, 17 central blocks 1 and 2) and ML128 (LB1-MB1):

Christmas Island Phosphates proposes to clear predominantly weedy vegetation with some native vegetation (predominantly Macaranga tanarius) within areas ML101 and ML128 for the period of financial year 2007-08 for mining. From site visits and photographs the majority of the areas under application contains degraded vegetation with little habitat for rainforest fauna. The application areas have been previously cleared and contain regrowth vegetation predominantly of weeds species and does not contain the vegetation types (evergreen tall closed forest, semi-deciduous closed forest, and deciduous scrub) that provides the predominant habitat for fauna.

ML128 (LB1-MB1) is adjacent to nesting sites for seabird colonies and is it recommended by Parks Australia (2007) that mining activities are conducted outside the main Red Footed Booby and Greater Frigatebird nesting periods (May to Sept).

ML132, ML101 and ML128:

There are a number of fauna species listed as endangered under the Environmental Protection and Biodiversity Conservation Act 1999 that are endemic to Christmas Island.

From the information in the National Recovery Plan for the Abbotts Booby (Papsaula abbotti) (Department of Environment and Heritage 2004) advises that the proposed clearing is unlikely to pose a threat to breeding sites of the endangered species. Most nests are known to occur within the National Park in the central and western areas in the tall plateau forest, sometimes being found along the north coast in the upper terrace forest. Nest sites are restricted to areas above 150m mostly on the sides of northwest facing slopes (Nelson 1978; Stokes, 1988).

The Island Thrush (Christmas Island) (Turdus poliocephalus erythropleurus) is endangered and lives in most habitats on Christmas Island, except for very dense regrowth, post-mining clearings or Pandanus thickets (Department of the Environment, Water, Heritage and the Arts (2008a). It is therefore unlikely to be impacted from the proposed clearing.

The Emerald Dove (Chalcophaps indica natalis) occupies most forested habitat on Christmas Island, including secondary regrowth dominated by the introduced Japanese Cherry (Mutingia calabura). The subspecies of Emerald Dove (Christmas Island) is endemic to Christmas Island and builds low flimsy stick nests. The most serious threat to the Emerald Dove (Christmas Island) is the spread of the Yellow Crazy Ant (Department of the Environment, Water, Heritage and the Arts (2008b).

The Emerald Dove, Christmas Island Goshawk, Christmas Island Hawk Owl (Department of the Environment, Water, Heritage and the Arts 2008; Hill 2004a) can be found in secondary regrowth, which indicates that the proposed clearing areas may represent habitat for these fauna.

The Christmas Island Goshawk (Accipiter faciatus natalis) is listed as endangered and is considered the rarest endemic bird on Christmas Islands where it occurs in all habitats from primary and marginal rainforests to suitable areas of secondary regrowth vegetation. The objective of the recovery plan is to protect habitats critical to the survival of the species from clearance (Hill 2004b). Gibson and Hill (1947) reported that Christmas Island Goshawks seemed to prefer areas of slightly thinner growth on the edge of thick jungle or the borders of clearings. During 1994 and 1995 Goshawks were observed in all major habitats on the island (Hill unpubl. Data). Goshawks were regularly seen hunting in regrowth vegetation along roadsides. A systematic survey over all habitat of the island undertaken by Parks Australia North found that 95% of sightings suggested more goshawks are located within rainforest than in cleared areas. The Christmas Islands Goshawk nests in horizontal forks of forest trees, 25-35m above the ground. Old stockpiles and cleared areas that have not been mined may support low second-growth forest of colonising trees such as Macaranga tanarius and Cloaoxylon indicum and introduced trees Leucaena leucosephala are generally less than 10m high. It is highly likely they require rainforest to breed as these habitats contain suitable trees. Using the precautionary principle an the criteria provided by the EPBC Act, habitat critical for the survival of the Christmas Island Goshawks is defined as all Primary Rainforest, Marginal rainforest and possibly second-regrowth forest suitable for nesting. The areas under application contain secondary growth forest and therefore may support populations of Christmas Island Goshawks.

While clearing on native vegetation is not likely to impact fauna in area ML101, due to its degraded state, it is possible that clearing of native vegetation within areas ML132 (directly impact) and ML128 (indirectly impact) may effect significant habitat for fauna indigenous to Western Australia. Therefore, the clearing as proposed is at variance to this principle.

Methodology

Environment Australia (2002)
Environmental Protection and Biodiversity Conservation Act (1999)
Department of the Environment, Water, Heritage and the Arts (2008a)
Department of the Environment, Water, Heritage and the Arts (2008b)
Department of Environment and Heritage (2004)
Gibson and Hill (1947)
Hill (2004a)
Hill (2004b)
Hill and Dunn (2004)
Mitchell (1974)
Nelson (1978)
Parks Australia Christmas Island National Parks advice (2007)
Stokes (1988)

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

Comments

Proposal may be at variance to this Principle

Christmas Island Phosphates proposes to clear up to 41.01 Ha of native vegetation for the period of financial year 2007-08 for mining. From site visits (2007) and photographs the majority of areas under application contain degraded vegetation dominated by weed species (ML101 and ML128) while ML132 contains vegetation in very good condition. (Keighery, 1994)

There are rare flora listed in the Christmas Island National Park Management Plan (Environment Australia 2002) and additional species that have been recommended for listing.

ML101:

Advice from Parks Australia North (2007) indicates that one of the sites on 17 central blocks 1 and 2 was within 30 metres of a location of the very restricted plant Cynometra ramifolia and directly adjacent to the National Park Boundary. However, this area has been subject to heavy clearing in the recent past and the condition of the recorded declared rare Flora (DRF) is currently unknown.

ML128 (degraded condition) and ML132 (very good condition):
Previous advice from Parks Australia North (2007) indicates that many of the rare species known to occur of the island would be unlikely to exist on severely disturbed areas. However, some may be found in undisturbed forest near the margins with disturbed areas.

Based on the advice provided by Parks Australia North (2007) it is possible that the vegetation in area ML132 could provide significant habitat for declared rare or priority flora as the condition of the vegetation is very good.

The clearing as proposed maybe at variance to this principle in areas ML132 (due to good vegetation condition providing viable habitat for DRF) and ML101 (due to the recorded presence of DRF despite the close proximity to heavily cleared area).

Methodology Environment Australia (2002)
Keighery (1994)
Parks Australia North advice (YEAR)
Site inspection (2007)

(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 at variance to this Principle**
There are no listed Threatened Ecological Communities on Christmas Island.

The clearing as proposed is therefore not at variance to this principle.

Methodology EPBC Act TEC list
GIS Database, SAC Biodataset (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 may be at variance to this Principle**
The proposed clearing occurs on Christmas Island where approximately 25% of the islands original forests have been cleared and replaces by shrublands of ferns on minefields, regrowth vegetation on stockpiles and roads and housing (Environment Australia, 1994). However, approximately 75% of Christmas Island is covered with native vegetation and 84% of this (63% of total island area) is protected within National Park.

ML128 and ML101:

The proposed clearing in areas ML128 and ML101 occur on land that has previously been cleared for phosphate mining and consists of regrowth vegetation with some native species, primarily Macaranga tanarius, Pipturus argenteus (var. lanosus) and Dysoxylum gaudichaudianum which are common on the island.
The areas proposed to clear are degraded and are dominated by weed species such as Leucaena leucosephala, Mutingia calabura (Japanese Cherry), and other non indigenous species (Claussen 2005).

ML132:

The proposed clearing on ML132 (LB7C block 1) will be undertaken on vegetation in very good condition; has not been disturbed for an estimated period of 25 years. The area is likely to have been cleared initially and significant regrowth has occurred.

The adjacent areas classified by Mitchell (1974) is characterised by closed forest on shallow soil and recognised as climax edaphic vegetation.

Advice from Parks Australia Christmas Island (2007) states that the northern corner of the site contained the most significant vegetation of all the sites. It contains climax rainforest and seabird nesting habitat (Parks Australia Christmas Island, 2007). The proposed clearing on ML 132 (LB&C block 1) is situated on the upper terrace and can be classified into the terrace rainforest habitat (Environment Australia, 2002).

This portion of land is adjacent to unallocated crown land that has not been cleared and represents a corridor linkage. On the eastern side of this portion of land the vegetation has been previously cleared and now supports pinnacle fields where the regrowth of vegetation is difficult.

The clearing as proposed maybe at variance to this principle as ML132 is significant as a remnant in the immediate area as it is part of an ecological linkage in a highly fragmented landscape.

Methodology Claussen (2005)
Environment Australia (2002)

Environment Australia (1994)
Mitchell (1974)
Parks Australia Christmas Island National Parks advice (2007)

(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 not likely to be at variance to this Principle

The proposed clearing is not adjacent to watercourses or wetlands. All of the area under application is situated on the plateau and not near the Dales on the western side of the island or Ross Hill Gardens. This proposal is not likely to be at variance to this principle.

Methodology

(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 interior of the island is slightly undulating plateau, from about 160-360m above sea level.

The area under application is situated on the plateau with relatively little relief, and above the terraces. Due to the nature of phosphate mining top soil will be removed in areas for insitu mining (ML101 - 17E, ML101 - 17East, ML101 - 17 South, ML100 - SP East, ML100 - SP South, ML100 -SP West North, ML135 ? 5P, ML135 ? 4P, ML135 ? Field 5, ML132 - LB7D, ML132 - LB7, ML132 - LB7C) and all other areas will be mined to ground level.

All areas that all mined insitu will be left as limestone boulders. As no wind erosion, water erosion, salinity, eutrophication or waterlogging is expected as a result of the clearing, this proposal is not likely to be at variance to this principle.

Methodology Environment Australia (2002)

(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 at variance to this Principle

The all of the proposed clearing sites lie adjacent on at least 1 border to National Park, Primary Rainforest and the majority are not in an Environmentally Sensitive Area (Register of National Estate) (Australian Heritage Council 2004).

ML101:

An impact on the environmental values of the nearby conservation areas is likely to occur as a result of the proposed clearing as the vegetation under application (ML101) is degraded and therefore has a high proportion of weed species present that will easily spread into nearby conservation areas once disturbed

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The proposed clearing areas have highly fragmented vegetation with sites surrounded by old pinnacle fields dominated by the fern Nephrolepis biserrate and weeds and active mining occuring. ML101 (17 central blocks) is adjacent to National Park and were reported as being within 30 metres of rare flora, however these sites have since been heavily cleared and the current condition of the recorded DRF is unknown. The site does not represent corridor linkages with conservation areas.

ML128:

ML128 (LB1-MB1) is adjacent to nesting sites for seabird colonies (south of the application area in Crown Reserve 47789) and is it recommended by Parks Australia (2007) that mining activities are conducted outside the main Red Footed Booby and Greater Frigatebird nesting periods (May to Sept). The clearing as proposed is likely to degrade the ecological values of the nearby conservation area and result of disturbance to seabird nesting sites.

ML132:

The proposed clearing on ML132 (LB7C block 1) would be undertaken on vegetation that has not been disturbed for an estimated period of 25 years. The area was likely to have been cleared initially and significant regrowth has occurred. The adjacent areas are classified by Mitchell (1974) and are characterised by closed forest on shallow soil and recognised as climax edaphic vegetation.
Advice from Parks Australia Christmas Island (2007) states that the northern corner of the site contained the most significant vegetation of all the sites. It contains climax rainforest and seabird nesting habitat (Parks Australia Christmas Island, 2007).

The proposed clearing on ML 132 (LB&C block 1) is situated on the upper terrace and can be classified into the terrace rainforest habitat (Environment Australia 2002). This portion of land is adjacent to unallocated crown land that has not been cleared and represents a corridor linkage to unallocated crown land and support habitat for sea birds and other fauna.
On the eastern side of this portion of land the vegetation has been previously cleared and now supports pinnacle fields where the regrowth of vegetation is difficult.
ML132 (LB7C block 1) is acting as a buffer between the unallocated crown land to its west and the degraded pinnacle fields to the east. Clearing of ML132 (LB7C block 1) is therefore at variance to this principle as clearing of the application area will impact of the environmental values of the conservation area to the west.

The clearing as proposed is at variance to this principle as all of the areas proposed to be cleared are within the immediate vicinity of conservation areas that may be impacted by the spread of weeds (ML101); increased disturbance to fauna and edge effects on vegetation (ML128) and increased vegetation disturbance and edge effects to Unallocated Crown Land that has not previously been cleared.

Methodology Australian Heritage Council (2004)
Environment Australia (2002)
Mitchell (1974)
Parks Australia Christmas Island National Parks advice (2007)
GIS dataset:
- Christmas Island Register of the National Estate (Geoscience Australia) - Environment Australia 2003
- Christmas Island 60cm Orthomosaic - Landgate06

(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
There are few surface water features on Christmas Island. All of the area under application is situated on the plateau and not near the Dales on the western side of the island or Ross Hill Gardens.

The proposed clearing is not adjacent to watercourses and as such is unlikely to impact the quality of surface water.

Groundwater flows along the limestone interface with basalt layer where the soils are transmissive. The depth to water and water quality in the proposed clearing area is unknown.

Due to the location of the areas proposed to be cleared, it is unlikely that the clearing of native vegetation for phosphate mining will cause deterioration in the quality of surface water or groundwater within the local area. Therefore this proposal is not likely to be at variance to this principle.

Methodology Environment Australia (2002)

(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 interior of the island is slightly undulating plateau, from about 160-360m above sea level.

The area under application is situated on the plateau with relatively little relief, and above the terraces. Due to the nature of phosphate mining top soil will be removed in areas for insitu mining (ML101 - 17E, ML101 - 17East, ML101 - 17 South, ML100 - SP East, ML100 - SP South, ML100 -SP West North, ML135 ? 5P, ML135 ? 4P, ML135 ? Field 5, ML132 - LB7D, ML132 - LB7, ML132 - LB7C) and all other areas will be mined to ground level.

There are few surface water features on Christmas Island. All of the area under application is situated on the plateau and not near the Dales on the western side of the island or Ross Hill Gardens.

As the clearing as proposed is not likely to cause or exacerbate waterlogging and because the water features on Christmas Island are not close to the applied area the clearing as proposed is not likely to be at variance to this principle.

Methodology Environment Australia (2002)

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

Comments

CIP have a Part V pollution licence issued to them under the EP Act (WA) (CI) for the control and abatement of pollution from the loading and unloading activities and processing activities (beneficiation of metallic or non-metallic ore).

There are no Aboriginal Sites of significance or Native Title Claim over the area.

EPA does not make decisions on Christmas Island (no SDA with DOTARS).
EPBC Act applies. The proposal has not been referred to DEW under the EPBC Act.

Methodology

4. Assessor's comments

Comment

The assessable criteria have been addressed and the clearing as proposed is at variance to Principles (a), (b)and (h), may be at variance to Principles (c) and (e), is not likely to be at variance to Principles (f), (g), (i) and (j) and is not at variance to Principle (d).

5. References

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6. Glossary

Term	Meaning
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now BCS)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
DoE	Department of Environment
DoIR	Department of Industry and Resources
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DEC)