



1. Application details

1.1. Permit application details

Permit application No.: 2090/1
 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: ML116 for phosphate mining

1.4. Application

| Clearing Area (ha) | No. Trees | Method of Clearing | For the purpose of: |
|--------------------|-----------|--------------------|---------------------|
| 7.52 | | Mechanical Removal | Extractive Industry |

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 |
|--|--|--|--|
| ML140 and ML101: Completely degraded: No longer intact; completely/almost completely without native species. | The areas under application are for the purpose of mining. ML 140 and ML 101 are previously cleared areas with regrowth, primarily dominated by weed species. ML140 covers 3.45ha ML101 covers 0.51ha | Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994) | The areas under application have had past disturbance though mining and a range in regrowth of 4 to 40 years (ML140 and ML101). Vegetation condition was determined from site visits and photographs supplied by CIP. |
| ML116 (Field 22A): Approximately 15% degraded (central to east of applied area) Remaining vegetation in Very good condition: Vegetation structure altered; obvious signs of disturbance (Keighery 1994). | The areas under application are for the purpose of mining. The vegetation within ML116 is approximately 15% degraded and approximately 85% in very good condition. ML116 covers 3.56ha | Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994) | The area under application has had past disturbance though mining and regrowth of less than 20 years (ML116). Vegetation condition was determined from site visits and photographs supplied by CIP. |

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

ML116:

The proposed clearing on ML116 (Field 22A) comprises 85% vegetation in very good condition with the

remaining vegetation in a degraded condition (Keighery, 1994). The vegetation is estimated to constitute regrowth of less than 20 years. The adjacent areas, as classified by Mitchell (1974), are described as a closed forest on deep soil which is likely to be transitional vegetation.

ML116 and ML140:

The areas ML116 (Field 22A) and ML140 (Field 26 MB5 & MB4) are within the flight zone of the Critically Endangered Christmas Island Pipistrelle bat. Advice from Parks Australia (2007) states ? the Critically Endangered Christmas Island Pipistrelle Bat has contracted to a very small section of the island concentrated around rainforest and disturbed land, including portions of ML140 and ML139. Parks Australia currently conducts monitoring of pipistrelle bats by means of automated ultrasonic bat detectors. Bats are regularly detected at sites less than 200 metres from the proposed areas to be cleared.?

ML140 and ML101:

The vegetation on ML140 and ML101 is not likely to contain a high level of biological diversity as the vegetation is no longer intact and almost completely devoid of native species.

The majority of the proposed clearing within these areas will be undertaken on previously cleared areas with regrowth, primarily dominated by weeds species, (supported by site inspections (2007), photographs and aerial photography) and therefore the vegetation under application in ML140 and ML101 is of low biodiversity value.

ML116, ML 140 and ML101

Additionally the Island Thrush, Emerald Dove and Christmas Island Goshawk are likely to inhabit the area ML116 and may inhabit the areas ML140 and ML101.

From site visits and photographs the vegetation of the area under application ranges from degraded vegetation dominated by weed species to vegetation in very good condition (Keighery, 1994). There is no known rare flora of priority flora associated with the proposal.

Given the disturbance to the sites (ML 101 and ML140) the vegetation is not considered to hold high biological diversity. Area ML 116 may still contain a high level of biological diversity, as 85% is in very good condition, and due to this the vegetation is likely to provide habitat for a number of significant species. Therefore, the proposed clearing may be at variance to this principle.

Methodology CINP Advice (2007)
James and Retallick (1997)
Department of the Environment & Water Resources (2007)
Site Visit (2007)
Environment Australia (2002)

GIS Database:
Christmas Island National Park Boundary

(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**
Christmas Island Phosphates proposes to clear up to 7.55 Ha of predominantly weedy vegetation with some native vegetation (predominantly *Macaranga tanarius*) for the period of financial year 2007-08 for mining.

ML101:

From site visits and photographs the ML101 (South Point Road South) area under application contains degraded vegetation with little habitat for rainforest fauna. The application area has been previously cleared and contains regrowth vegetation predominantly of weeds species and does not contain the vegetation type (evergreen tall closed forest, semi-deciduous closed forest, and deciduous scrub) that provides the predominant habitat for fauna.

ML116 and ML140:

The areas under application, ML116 (Field 22A) and ML140 (Field 26 MB5 & MB4), are within the flight zone of the Critically Endangered Christmas Island Pipistrelle bat. Advice from Parks Australia (2007) states ? the Critically Endangered (under the Environment Protection and Biodiversity Conservation Act 1999) Christmas Island Pipistrelle Bat has contracted to a very small section of the island concentrated around rainforest and disturbed land, including portions of ML140 and ML139. Parks Australia currently conducts monitoring of pipistrelle bats by means of automated ultrasonic bat detectors. Bats are regularly detected at sites less than

200 metres from the proposed areas to be cleared.?

?The habitat in the area proposed for clearing is potentially used as a foraging site by the pipistrelle bats detected in nearby areas, however this is not known with certainty unless specific bat detection monitoring is undertaken on the proposed site. The proposed area is mainly *Leucaena*-infested, and while possibly used as a foraging site it is not suitable as a roosting site for the pipistrelle bat,? (Parks Australia, 2007).

ML116 (Field 22A):

?Approximately 75% of this proposed area has already been cleared. The remaining 25% of the site consists of forest of less than twenty years of age. Parks Australia has been monitoring pipistrelle bat activity adjacent to this site for over two years and has detected very low levels of bat activity,? (Parks Australia, 2007).

A survey conducted in 2005 identified probably over 80% of Pipistrelles foraged in a small area around mining leases ML140 (Field 26), ML139 (Field 25), ML138 (the IRPC) and adjacent areas of the National Park (James & Retallick, 2007). The foraging areas were found to extend along parts of the Dales Rd, throughout most of Field 26 (ML140) to parts of Field 25 (ML 139), around areas of the IRPC, and along the North-west Point Road 1-2 km eastwards from the IRPC (James & Retallick, 2007).

The Pipistrelles Bat appeared to be foraging mostly in secondary regrowth (containing a mixture of native vegetation and weeds), and using tracks and clearings as flying lanes (James & Retallick, 2007). Pipistrelles were generally absent from extensively open and cleared areas (James & Retallick, 2007). In the monitoring undertaken in 2006 the overall relative abundance of the Pipistrelles were found to have declined significantly but still present (James & Retallick, 2007). Loss of habitat is emerging as possibly the most serious threat over the next few years, although this was not likely to have caused the initial declines (James & Retallick, 2007).

The National Recovery plan for the Pipistrelle (Schultz & Lumsden 2004) recommend that the actions to be taken to increase protection of known and potential Pipistrelle habitat outside the National Park and to assess the potential impact of phosphate stockpile removal (James & Retallick, 2007). During the mapping of foraging areas in mid 2005 a number of freshly bulldozed tracks were discovered in secondary regrowth in mining leases ML140 (Field 26), ML139 (Field 25) and ML 138 (James & Retallick, 2007). Provisional mapping of the tracks with GPS was undertaken, and based on the accuracy of those tracks, they had encroached on the National Park at up to five places (James & Retallick, 2007). Relatively high numbers of bats were found along these tracks when surveyed with bat detectors (James & Retallick, 2007).

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

ML116, ML140 and ML101:

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. It is therefore unlikely to be impacted from the proposed clearing.

The Emerald Dove, Christmas Island Goshawk, Christmas Island Hawk Owl can be found in secondary regrowth, which indicates that the proposed clearing areas may represent habitat.

The Emerald Dove (*Chalcophaps indica natalis*) occupies most forested habitat on Christmas Island, including secondary regrowth dominated by the introduced Japanese Cherry (*Muntingia 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.

The Christmas Island Goshawk (*Accipiter faciatius 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 downgrade the Christmas Island Goshawk from Endangered to Conservation Dependent through conservation mechanisms, including the protection of habitat critical to the survival of the species from clearance. Gibson & 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 95% of sightings suggested that 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, two nests were found in Primary rainforest (*Syzygium nervosum*) and one in Marginal rainforest (*Terminalia catappa*) (Gibson-Hill, 1947). 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 tree *Leucaena leucosephala* generally less than 10m high. Previously mined areas tend to have very little remaining soil and on them grows dense herblands of fern *Nephrolepis multiflora* to 2 m high along with introduced scramblers and occasional low trees. Identification of habitat critical for the survival of the Christmas Island Goshawk is difficult due to the lack of information on specific habitat requirements. Christmas Island Goshawks are most likely generalists which forage in most habitats, it is highly likely they require rainforest to breed as these habitats contain suitable trees.

About 75% of Christmas Island has native vegetation and 84% of this is protected in National Park (approx 63% of the island). Using the precautionary principle and 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. There is no mapping available regarding suitable second-growth forest.

The clearing as proposed is at variance to this principle as ML116 (Field 22A) and ML140 (Field 26 MB5 & MB4) are within the flight zone of the Critically Endangered Christmas Island Pipistrelle bat and all of the application areas may provide habitat for the Island Thrush, Emerald Dove and the Christmas Island Goshawk.

Methodology CINF Advice (2007)
Hill (2004a)
Hill (2004b)
Species Profile and Threats Database (2008a)
Species Profile and Threats Database (2008b)
Department of Environment and Heritage (2004)
James and Retallick (1997)
Department of the Environment & Water Resources (2007)

(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 7.55 Ha of native vegetation for the period of financial year 2007-08 for mining.

ML116:

From site visits and photographs the areas under application (ML 116) contains approximately 15% degraded vegetation dominated by weed species with the remaining vegetation in very good condition. There is no known rare flora of priority flora associated with the proposal.

The proposed clearing site does lie adjacent to National Park, Primary Rainforest and the majority are in an Ecologically Sensitive Area (Register of National Estate ? natural). However, only the vegetation to the north west of the application area is in good condition.

As one side of the proposed clearing (in ML116) lies adjacent to National Park and Primary Rainforest (north west boundary) it is possible that Declared Rare Flora may on this boarder of the application area and therefore the clearing as proposed maybe at variance to this principle.

ML140 and ML101:

There is rare flora listed in the Christmas Island National Park Management Plan and additional species that have been recommended for listing. Advice from Parks Australia North indicates that many of the rare species would be unlikely to exist on severely disturbed areas (such as ML101 and ML140). However, some may be found in undisturbed forest near the margins of disturbed areas.

The Clearing as proposed may be at variance to this principle as there is a possibility that the vegetation under application could constitute significant habitat for declared rare flora.

A flora survey is required to determine if any DRF occur in the application boundaries to National Parks and Primary Rainforest and if any DRF occur within ML116.

Methodology Site Visit (2007)
Environment Australia. (2002)
CINF Advice (2007)

GIS Database:
Christmas Island National Park Boundary

(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.

Therefore the clearing as proposed is not at variance to this principle.

(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 likely to be at variance to this Principle

The proposed clearing occurs on Christmas Island where approximately 25% of the island's original forests have been cleared and replaced by shrublands of ferns on minefields, regrowth vegetation on stockpiles and roads and housing (Environment Australia, 1994).

The proposed clearing occurs on land that have 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 be cleared (ML140 and ML101) contains mostly degraded vegetation that are dominated by weed species such as *Leucaena leucosephala*, *Muntingia calabura* (Japanese Cherry), and other non indigenous species. The exception to this is ML116 (22A) which has approximately 85% vegetation in very good condition.

Approximately 75% of Christmas Island is covered with native vegetation and 84% of this (63% of total island area) is protected within National Park.

The vegetation under application is not part of the island's original forests and the vegetation for most of the application area is in a degraded condition with weed species dominating; with the exception of approximately 85% of ML116 (22A) which is in very good condition. The vegetation within the application area is not considered to be a significant remnant of vegetation as it is not located in an extensively cleared landscape and therefore is not likely to be at variance to this principle.

Methodology Claussen (2005)
Environment Australia. (2002)
Hill (2004a)

(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 Environment Australia. (2002)

(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 may be at variance to this Principle

The proposed clearing site ML116 lies adjacent to National Park, Primary Rainforest and the majority are in an Ecologically Sensitive Area (Register of National Estate ? natural).

Given that the areas under application are highly invaded by weeds it is likely that the clearing area is acting as a buffer to the adjacent conservation areas and therefore may prevent the spread of weeds into these sensitive areas.

The clearing as proposed may be at variance to this principle as clearing of the applied area could result in adjacent conservation areas being exposed to weed invasion.

Methodology GIS Database:
GIS 2006 Orthophoto Christmas Island
Register of National Estate (GeoScience)
PAN proposed rehabilitation areas

(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 areas under application are 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 or flooding and as 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)
GIS Database:
GIS 2006 Orthophoto
Register of National Estate GIS layer (GeoScience)
PAN proposed rehabilitation areas

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 clearing as proposed has been assessed against the clearing principles and has been found to be at variance to Principle (b), maybe at variance to Principles (a), (c) and (h) is not likely to be at variance to Principles (e), (f), (g), (i) and (j) and is not at variance to Principle (d).

5. References

- Advice Parks Australia, (2007) Christmas Island National Park
- Claussen, J. (2005). Native Plants of Christmas Island. Flora of Australia Supplementary Series Number 22, Department of Environment and Heritage.
- Department of Environment and Heritage (2004). National Recovery Plan for the Abbott's Booby *Papsaula abbotti*. Department of the Environment and Heritage, Canberra.
- Department of the Environment & Water Resources (2007) Parks Australia North, Christmas Island Biodiversity Monitoring Programme, February 2007.
- Environment Australia. (2002). Christmas Island National Park Management Plan. Commonwealth of Australia.
- EPBC Act TEC List (2008) viewed electronically from < <http://www.environment.gov.au/cgi-bin/sprat/public/publiclookupcommunities.pl>> accessed 12/05/2008
- Hill, R. (2004a). National Recovery Plan for the Christmas Island Goshawk *Accipiter fasciatus natalis*. Commonwealth of Australia, Canberra.
- Hill, R. (2004b). National Recovery Plan for the Christmas Island Hawk-Owl *Ninox natalis*. Commonwealth of Australia, Canberra.
- James, D.J. and Retallick, K. (1997). Christmas Island Pipistrelle *Pipistrelle murrayi* Andrews 1900: research into Conservation Status and Threats, 2004-2006. Report to Department of Finance & Administration
- Site Visit (2007) CPS 2090/1 Site Inspection Report Christmas Island. Department of Environment and Conservation Trim Ref DOC53322
- Species Profile and Threats Database, Department of Environment and Water Resources ? *Chalcophaps indica natalis* - Emerald Dove
- Species Profile and Threats Database, Department of Environment and Water Resources ? Island Thrush (*Turdus poliocephalus erythrpleurus*)

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) |

