



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2385/2
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Cliffs Asia Pacific Iron Ore Pty Ltd

1.3. Property details

Property: Mineral Lease 04/10
Mining Lease 04/137
Local Government Area: Shire of Derby-West Kimberley
Colloquial name: Cockatoo Island Stage 3 Embankment Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.025		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

The area applied to clear is located on a seabed and is made up of sparse macroalgal cover, interspersed with small outcrops of coral (MScience, 2008).

A Macroalgal survey was undertaken within the application area during the 25th - 26th of January 2008. The findings of the survey showed that the seawall extension area was predominantly mud flat habitat containing less than 1% of marine macroalgae. MScience (2008) have stated that isolated occurrences of macroalgae cover occur on small outcrops of coral rubble within the mud flat area. The macroalgae species recorded within the application area included *Halimed* and *Sargassum*, which are geographically widespread.

At the outer edges of the mud flats, the habitat changes into a mid reef pool habitat, with minimal coral and algal growth occurring on small isolated outcrops of rubble. Species of geographically widespread red macroalgae such as *Actinotrichia fragilis*, *Amphiroa foliacea* and *Acanthophora spicifera*, were recorded on small rubble outcrops along with brown alga such as *Padina* sp. and *Lobophora variegata* (MScience, 2008). These discontinuous clumps of common tropical reef flat algae had varying cover of around 5-25%. Only a small section of this habitat type was located within the south-east corner of the application area.

The south-eastern edge of the proposed seawall had increased coral cover of up to 100% (MScience, 2008). This habitat had low macroalgal cover of 10% found in isolated clumps amongst coral. MScience (2008) have stated that the algal species present were common in the tropics, such as *Padina* and *Actinotrichia fragilis*. This habitat type is located within the application area, however, only a small section of this vegetation type is required to be cleared for the seawall extension.

The north-western end of the existing seawall was also sampled by MScience (2008). This area does not occur within the application area but was surveyed to provide a comparison between a good example of macroalgal habitat and the macroalgal habitat found within the application area (MScience, 2008). The macroalgal habitat type identified in this area does not exist within the application area. It had high macroalgal cover of up to 100% and included species such as foliose *Padina* and erect and highly branched *Sargassum* species -such as those found in the application area (MScience, 2008). In addition to this species such as *Botrycladia*, *Champia zostericola* and different *Halimeda* sp. were also recorded, which is indicative of a more diverse range of flora.

Clearing Description

The clearing of 0.025 hectares of native vegetation within a 2.73 hectare purpose permit boundary is required for developing the Embankment Project Stage 3 Project - Seawall Extension. This involves extending the current seawall at Cockatoo Island approximately 80 metres to the south-east of its current position. The earthen seawall will be constructed with a clay core and will be approximately 375 metres in length (Portman Iron Ore, 2008). During the construction of the seawall clearing will involve dumping earthen material over macroalgae on the mud flat.

Vegetation Condition

Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).

Comment

The vegetation is located on a mud flat directly adjacent to current mining operations (MScience, 2008). It is likely that the vegetation proposed to be cleared has been degraded during the construction phase of Stages 2 and 3 of the Embankment Project. This would have been a result of machinery (loaders, etc) moving over the vegetation and excess sediment in the water column.

Clearing permit CPS 2385/1 was granted to Portman Iron Ore Ltd by the Department of Industry and Resources (now Department of Mines and Petroleum) on 17 April 2008, and is valid from 17 May 2008 to 31 December 2012. The clearing permit authorised the clearing of 0.025 hectares of native vegetation. An application for an amendment to clearing permit CPS 2385/1 was submitted by Cliffs Asia Pacific Iron Ore Pty Ltd to the Department of Environment and Conservation on the 9 April 2009. The application was later transferred to the Department of Mines and Petroleum. The application was not immediately assessed as an application form was not completed. The Department received a completed application form on 13 November 2009. The proponent has requested the company name on the permit be changed from Portman Iron Ore Ltd to the new company name of Cliffs Asia Pacific Iron Ore Pty Ltd. The area to be cleared, permit boundary and permit duration will remain unchanged.

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 in the Buccaneer Archipelago, 130 kilometres north-west of Derby in the southern Kimberley region of Western Australia (MScience, 2008). A prominent feature of the subregion is the rugged sunken coastline with extensive Mangal occurring in estuaries and deep, sheltered embayments. Rare features of the subregion include a sunken coastline with extensive coastal archipelagos from Buccaneer to Sir Graham Moore Island that form a microcosm of the subregion and present an opportunity to protect an intact ecosystem (Graham, 2001).

A Macroalgal survey was undertaken within the application area during the 25th - 26th of January 2008 by MScience (2008). The survey showed that the majority of the application area is made up of a mud flat, made of silt that is brown to red in colour. Within the mud flat habitat were scattered occurrences of macroalgal cover (<10%) on small coral rubble outcrops. MScience (2008) have stated that all macroalgal species present were common within the tropics.

A second habitat type was recorded in the south-eastern corner of the application area, which is described as the transition area from mud to mid reef pool. It contained minimal coral and algal growth occurring on small isolated outcrops of rubble. The discontinuous clumps (<5-25%) of red macroalgae species recorded within this habitat were well represented in the tropics.

A final habitat type was recorded on outer edge of the south-eastern corner of the application area, described as coral reef crest. This habitat had increased coral cover (up to 100%), due to the proximity to the coral reef crest. However, this habitat had low macroalgal cover (10%) found in isolated clumps amongst the coral cover. The algal species present, such as *Padina* and *Actinotrichia fragilis* were all common in the tropics (MScience, 2008).

An additional habitat was surveyed outside the application area at the north-western end of the seawall (MScience, 2008). This habitat was described as a predominantly macroalgal habitat, with more diverse flora species present than within the south-eastern end of the reef flat. Macroalgal cover was up to 100% in some places, additional species included *Botrycladia*, *Champia zostericola* and *Halimeda* sp. MScience (2008) have stated that this habitat type represents a more diverse and complex habitat than those found within the application area. It is unlikely that the clearing of a small amount of vegetation (0.025 hectares), within a predominantly homogenous habitat type (mud flats), would result in a significant impact to the biodiversity attributes of the area on a local or regional level.

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

Methodology

Graham (2001).
 MScience (2008).
 GIS Databases:
 - Interim Biogeographic Regionalisation of Australia - EA 18/10/00
 - Interim Biogeographic Regionalisation of Australia (subregions) - EA 18/10/00

(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**

A database search of the application area was undertaken by the assessing officer on the 28th of March 2008. This involved a database search of the Western Australian Museums FaunaBase. As a result, there were 4 species of conservation significance listed under both the Environmental Protection Biodiversity Conservation Act 1999 and the Wildlife Conservation Act 1999 that may occur in the application area. These include: Loggerhead Turtle (*Caretta caretta*), Green Turtle (*Chelonia mydas*), Hawksbill Turtle (*Eretmochelys imbricata*)

and Saltwater Crocodile (*Crocodylus porosus*) (FaunaBase, 2008).

It is possible that the conservation significant species identified from the database search may be found in the application area. However, it is likely that these species would only utilise habitats (coral reefs and mudflats) within the application area for foraging for food, and not nesting. For instance, marine turtles require sandy beaches for nesting so they can dig large holes in which they can lay their eggs in and later bury (Burbidge, 2004). It is unlikely that a mudflat which is in close proximity to an existing seawall would provide a suitable nesting habitat for these species. Additionally it should be noted that the proposed clearing represents a small amount of vegetation (0.025 hectares) and as a result, it is unlikely to significantly reduce the habitat of these conservation significant species.

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

Methodology Burbidge (2004).
FaunaBase (2008).

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

Comments Proposal is not at variance to this Principle

The flora species located within the application area have been identified as macroalgae species on a mud flat habitat (MScience, 2008). The flora species are subject to inundation of marine water during tidal fluctuations. There are no marine flora species listed as Declared Rare Flora or Priority flora species within Western Australia.

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

Methodology MScience (2008).

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

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

There are no known Threatened Ecological Communities (TECs) located in the application area or within a 50 kilometre radius (GIS Database). Based on the large distance between the closest known TEC and the application area and the small size of clearing (0.025 hectares) required it is unlikely there will be any significant impacts to any known TECs as a result of the proposal.

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

Methodology GIS Database:
- Threatened Ecological Communities - CALM

(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

No available references are known for estimating the existing and pre-European extent of macroalgal assemblages in marine habitats. The application area is located on a mud flat, there is sparse macroalgal coverage which may be cleared as a result of the proposal (MScience, 2008). According to MScience (2008) species observed within the application area are geographically widespread. Therefore, it is considered highly likely that well over 30% of the pre-European extent of this vegetation type remains intact at present

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

Methodology MScience (2008).

(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 at variance to this Principle

The application area is located within a marine environment, specifically within a mud flat habitat and is subject to inundation of marine water during tidal fluctuations (MScience, 2008). There is no riparian vegetation located within the application area (MScience, 2008).

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

Methodology MScience (2008).

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

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

The application area is predominantly a marine mud flat approximately 80 metres wide along the entire length of the proposed seawall extension. The mud flat is made up of mud and silt that is brown to red in colour, containing some visible dark iron ore fines (MScience, 2008). The mud varies in thickness (10-50cm deep) and is interspersed with coral skeletons and rubble.

Degradation of marine habitat within the application area is likely to be limited to during the seawall construction phase. The implementation of the current seawall at Cockatoo Island has resulted in increased sediment loads, and some coral and macroalgae habitats in the immediate region have experienced sedimentation (Portman Iron Ore, 2008). It is likely that the construction of the Stage 3 Seawall will increase sedimentation as well, and potentially result in the smothering of coral reef habitat to the south of the application area (MScience, 2008). However, it should be noted that there are significant tidal fluctuations in the application area of up to 10 metres (Portman Iron Ore, 2008). During these tidal fluctuations water moves rapidly in and out of the mudflat area and is likely to wash sediment off coral and macroalgae. The movement of this water over coral and macroalgal species may counteract the excess suspended sediments released into the marine environment. It should be noted, a significant amount of time is required for sediment to stay lodged on macroalgae or coral species for it to have negative impacts, and this would be difficult given the tidal movements experienced within the region.

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

Methodology MScience (2008).
Portman Iron Ore (2008).

(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 application area is located within the Red Book Area 7.2 - Inshore Islands of the Buccaneer Archipelago (GIS Database). The Buccaneer Archipelago lies at the head of King Sound, north of Derby (CONSERVATION THROUGH RESERVES COMMITTEE, 1978). Koolan and Cockatoo Islands are among the principal islands of the Group and are well known as the site of iron ore mines. Little information is available on the biology of the Archipelago, however, the Northern Quoll (*Dasyurus hallucatus*), Common Rock Rat (*Zyromys argurus*), Ghost Bat (*Macroderma gigas*), Orange Leaf-nosed Bat (*Rhinonictis aurantius*), Hoary Bat (*Chalinobus rogersi*), Little Bat (*Eptesicus pumilis*) and Black Flying Fox (*Pteropus alecto*) are known to occur in the region (CONSERVATION THROUGH RESERVES COMMITTEE, 1978). However, these species are all restricted to terrestrial habitats, and therefore impacts to conservation significant fauna species are likely to be minimal.

Based on the location of the proposal in the Red Book Area 7.2 - Inshore Islands of the Buccaneer Archipelago, the proposed clearing may be at variance to this principle. However, the main values of this Red Book Area identified by the CONSERVATION THROUGH RESERVES COMMITTEE (1978) are terrestrial and are unlikely to be impacted upon. It is acknowledged that the marine habitats are of some value, however, they have not been considered for reservation.

Methodology CONSERVATION THROUGH RESERVES COMMITTEE (1978).
GIS Database:
- CALM Managed Lands and Waters - CALM 1/07/05
- System 1 to 5 and 7 to 12 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

The proposed clearing is located on a mud flat, which is subject to inundation of marine water (MScience, 2008). The vegetation located within the application area is made up of isolated occurrences of macroalgal cover on small coral rubble outcrops (MScience, 2008). It is possible that the construction of the seawall will increase sedimentation in the immediate region, and potentially result in the smothering of coral reef habitat to the south of the application area (MScience, 2008). However, it should be noted that there are significant tidal fluctuations in the application area of up to 10 metres (Portman Iron Ore, 2008). During these tidal fluctuations water moves rapidly in and out of the mudflat area and is likely to wash sediment off coral and macroalgae. Given the relatively small area of clearing proposed (0.025 hectares) and the tidal fluctuations of the region, the proposal is not likely to cause deterioration in the quality of the sea water in which it occurs.

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

Methodology MScience (2008).

(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 at variance to this Principle

The area under application is located on a mud flat in a marine habitat, and is naturally inundated (MScience, 2008).

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

Methodology MScience (2008).

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

Comments

There is one native title claim over the area under application (GIS Database). This claim (WC99/007) has been registered with the National Native Title Tribunal on behalf of the claimant group (GIS Database). However, the mining tenement has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered 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.

It is the proponent's responsibility to liaise with the Department of Environment and Conservation and the Department of Water to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

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Methodology GIS Databases:

- Aboriginal Sites of Significance - DIA 04/07/02.
- Native Title Claims - DLI 19/12/04.

4. Assessor's comments

Comment

The Clearing Principles have been addressed and the amended proposal may be at variance to Principle (h), is not likely to be at variance to Principles (a), (b), (d), (e), (g) and (i), and is not at variance to Principles (c), (f) and (j).

Should the permit be granted, it is recommended that conditions be imposed on the permit for permit reporting.

5. References

- Burbidge, A (2004) Threatened animals of Western Australia. Department of Conservation and Land Management. Kensington, Western Australia.
- CONSERVATION THROUGH RESERVES COMMITTEE (1978) Conservation Reserves in Western Australia, Report of the Conservation Through Reserves Committee on system 7 to the Environmental Protection Authority 1977. Western Australia.
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- FaunaBase (2008) URL: <http://www.museum.wa.gov.au/faunabase/prod/index.htm>
- Graham, G (2001) Northern Kimberley 1 (NK1 - Mitchell subregion) Subregional description and biodiversity values, dated August 2001. In: "A biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002". Report published by the Department of Conservation and Land Management, Perth, Western Australia.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- MScience (2008) COCKATOO ISLAND SEAWALL STAGE 3 - MACROALGAL SURVEY 2008. Unpublished report for Portman Iron Ore Ltd. Perth, Western Australia.
- Portman Iron Ore (2008) Additional information for clearing permit application.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status.

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
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.
DoW	Department of Water
EP Act	Environment Protection Act 1986, Western Australia.
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System.
IBRA	Interim Biogeographic Regionalisation for Australia.
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
RIWI	Rights in Water and Irrigation Act 1914, Western Australia.
s.17	Section 17 of the Environment Protection Act 1986, Western Australia.
TECs	Threatened Ecological Communities.

Definitions:

{Atkins, K (2005). *Declared rare and priority flora list for Western Australia, 22 February 2005. Department of Conservation and Land Management, Como, Western Australia*} :-

P1	Priority One - Poorly Known taxa: taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P2	Priority Two - Poorly Known taxa: taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P3	Priority Three - Poorly Known taxa: taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.
P4	Priority Four – Rare taxa: taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.
R	Declared Rare Flora – Extant taxa (= Threatened Flora = Endangered + Vulnerable): taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
X	Declared Rare Flora - Presumed Extinct taxa: taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-

Schedule 1	Schedule 1 – Fauna that is rare or likely to become extinct: being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.
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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.