

Date : 1/11/2013 4:34:02 PM

From : "Maver Neil"

To : Contrary to public interest (RTAWEIPA)"

Cc : "Wannan Bruce", "Sharpe Dean", sch4 Contrary to public interest (RTAWEIPA)", "Ramsay Michelle"

Subject : RE: RTAW Land Use Management Plan

Attachment : EHP 2013 Adequacy of CMZ areas RTA Weipa LUMP opt.pdf;image001.jpg;

Hi sch4 Contrary to public interest

Please see attached the EHP LUMP **Review of Adequacy of Conservation Management Zones** for your review and comment. Let me know of a preferred time to further discuss the actions/recommendations provided in the report.

Also please advise if you happen to have a copy of the below publication:

Reddell, P., and Hopkins, M. (1994). *Ecological assessment and monitoring of rehabilitation at Weipa. Project 1: review of existing research and the development of criteria for classifying and assessing rehabilitation. Minesite Rehabilitation Research Program. Commonwealth Scientific and Industrial Research Organisation.*

Regards

Neil Maver

Senior Environmental Officer | Mining & Heavy Industry
Environmental Services & Regulation | Northern Region
Department of Environment & Heritage Protection
Phone: (07) 4222 5331 **Fax:** (07) 4222 5070
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From: sch4 Contrary to public interest [mailto:sch4@riotinto.com]
Sent: Thursday, 24 October 2013 12:53 PM
To: Maver Neil
Cc: Wannan Bruce; Sharpe Dean; Dewach4 Contrary to public interest (RTAWEIPA)
Subject: RE: RTAW Land Use Management Plan

Hi Neil,

Apologises for the delay in responding to your email.

Please find attached relevant Quoll information from the work that Rio Tinto Alcan Weipa have been carrying out. Please also note this information was provided to the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC).

I have also attached a copy of the Conservation Zone 5rD Rehab Strategic Buffer. Within this shapefile you will notice the attribute date, it is important to note that the field "seed_Dat" is in not an indication of when the area was originally cleared, rather it details when the rehabilitation was carried out. Due to some of the historic practices on-site some areas in East Weipa were in fact cleared in the late 1970s and not rehabilitated until the early 1980s.

It is also important to note that the Environment Buffer is routinely updated after certain Environment Surveys (pre-clearing & baseline surveys) have been carried out. All of the areas outlined in the shapefile are within the buffer as a result of the Environment Buffer expanding through-out the history of the operation.

Regards

sch4 Contrary to public interest

From: Maver Neil [mailto:Neil.Maver@ehp.qld.gov.au]
Sent: Friday, 18 October 2013 3:46 PM
To: sch4p4(6) Personal information (RTAWEIPA)
Cc: sch4p4(6) Personal information (RTAWEIPA); Wannan Bruce; Sharpe Dean
Subject: RE: RTAW Land Use Management Plan

sch4p4(6) Personal information

I expect to have this to you before the end of next week. In the meantime could you please forward details of the following:

1. records for Quolls with geographic location, date, habitat, recorder etc.
2. a copy of shapefile: CMP 5rD rehab strategic buffer

These items were requested by EHP following our last meeting.

Thanks

Neil Maver

Senior Environmental Officer | Mining & Heavy Industry
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From: [redacted] sch4 Contrary to public interest [redacted]@riotinto.com]
Sent: Friday, 18 October 2013 10:59 AM
To: Maver Neil
Subject: RE: RTAW Land Use Management Plan

Hi Neil,

I am keen to receive the revised discussion document you mention. Can you pls give me an update on when you might expect to get that to me?

Thanks,

[redacted] sch4 Contrary to public interest

From: Maver Neil [<mailto:Neil.Maver@ehp.qld.gov.au>]
Sent: Wednesday, 9 October 2013 12:21 PM
To: [redacted] sch4 Contrary to public interest (RTAWEIPA)
CC: [redacted] (RTAWEIPA); Wannan Bruce; Sharpe Dean
Subject: RE: RTAW Land Use Management Plan

[redacted] sch4p4(6) Personal information

Please disregard my last email. We will soon provide a revised discussion document with greater clarity on any further action required.

I expect to have this to you possibly mid next week.

Regards

Neil Maver

Senior Environmental Officer | Mining & Heavy Industry
Environmental Services & Regulation | Northern Region
Department of Environment & Heritage Protection
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From: Maver Neil
Sent: Thursday, 3 October 2013 4:53 PM
To: [redacted] sch4 Contrary to public interest (RTAWEIPA)
CC: [redacted] (RTAWEIPA)
Subject: RE: RTAW Land Use Management Plan

[redacted] sch4 Contrary to public interest

It is considered the comments provided in the Bruce Wannan discussion document are clear in terms of what our expectations are for any further adjustments to the content of the LUMP. If you feel there is nothing further to add to the document, that's fine, this will be considered but I wouldn't rule out the possibility of further comments by EHP. Please provide track changes or a summary of any adjustments on

submission of the next version.

Regards

Neil Maver

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From: [redacted] sch4 Contrary to public interest [redacted] @riotinto.com]

Sent: Thursday, 3 October 2013 12:31 PM

To: Maver Neil

sch4 Contrary to public interest (RTAWEIPA)

Subject: RE: RTAW Land Use Management Plan

Hi Neil,

How did you go with this request?

Is there an expectation that we will meet again to discuss this information or is it just FYI? If the former, I am concerned we will run out of time before the LUMP is due (Nov 30th).

Thanks,

sch4 Contrary to public interest

From: [redacted] sch4 Contrary to public interest (RTAWEIPA)

Sent: Thursday, 12 September 2013 11:37 AM

To: Neil.Maver@ehp.qld.gov.au

sch4 Contrary to public interest (RTAWEIPA)

Subject: RE: RTAW Land Use Management Plan

Hi Neil,

As briefly discussed this morning, could you please clarify for me the intent of the 2 DEHP documents. They are full of very interesting information, but there are no clearly stated concerns or 'points' for me to consider when updating the LUMP.

Regards,

sch4 Contrary to public interest

From: [redacted] sch4 Contrary to public interest (RTAWEIPA)

Sent: Monday, 9 September 2013 3:10 PM

sch4 Contrary to public interest (RTAWEIPA)

Subject: FW: RTAW Land Use Management Plan

FYI

From: Wannan Bruce [<mailto:Bruce.Wannan@ehp.qld.gov.au>]

Sent: Monday, 9 September 2013 3:01 PM

sch4 Contrary to public interest (RTAWEIPA); Maver Neil

Cc: [redacted] (RTAWEIPA); Sharpe Dean; Ramsay Michelle

Subject: RE: RTAW Land Use Management Plan

sch4 Contrary to public interest

Its very helpful.

Let me know if I can help with any further info on the LUMP material.

The difference between our figures is possibly your more up to date cleared areas – but I will check when I get a chance (I am glad that we are within 0.5%!).

Regards
Dr Bruce Wannan

Principal Biodiversity Planning Officer
Department of Environment and Heritage Protection
5B Sheridan St/ PO Box 937 CAIRNS Qld 4870

Ph: 07 4222 5441

Fax: 07 4222 5070

Mobile: [redacted] Contrary to public interest

From: [redacted] sch4 Contrary to public interest [redacted]@riotinto.com]

Sent: Friday, 6 September 2013 9:11 AM

To: Maver Neil; Wannan Bruce

[redacted] sch4 Contrary to public interest (RTAWEIPA); Sharpe Dean; Ramsay Michelle

Subject: RE: RTAW Land Use Management Plan

Hi Neil and Bruce,

Thank you again for your time yesterday in attending the Summary Meeting of the Rehabilitation Advisory Panel.

With regards to the below request, I apologise for my delay in responding. As you know we have been busy in preparing for the submission of the Rehabilitation Management Plan.

In relation to the total area of RE 3.5.2 covered by the RTAW Environmental Buffer System, I have conducted some spatial analysis against version 7 of the Regional Ecosystem. During the analysis I have buffered the mining lease area by 200m similar to that performed by Bruce to account for cadastral difference between EHP cadastre and RTAW cadastre. Based on the analysis conducted I was able to calculate that 94,700 ha of 3.5.2 of RE 3.5.2 exists on the lease. I'm uncertain as to why there is a discrepancy between this calculation and to that of Bruce's (92,293.84 ha). Of the 94,700ha of RE 3.5.2 on the lease, 19,965ha is protected by the Environment Buffer System, this equates to 21% of the current extent of the RE.

Thank you for also providing the discussion notes on the LUMP. We are currently working through the points outlined in the document and will be endeavouring to provide DEHP with a response shortly.

Regards

[redacted] sch4 Contrary to public interest

From: Maver Neil [mailto:Neil.Maver@ehp.qld.gov.au]

Sent: Monday, 5 August 2013 5:11 PM

To: [redacted] RTAWEIPA); Wannan Bruce

[redacted] sch4 Contrary to public interest (RTAWEIPA); Sharpe Dean; Ramsay Michelle

Subject: RE: RTAW Land Use Management Plan

[redacted] sch4 Contrary to public interest

My notes also suggest RTAW is prepared to provide spatial info on the total area (ha and as a % of lease area) of RE 3.5.2 covered by buffer zones or other RTAW protected areas and potentially any records available for the habitat distribution of Quolls.

Also attached here for your records and action in terms of adjustments to the content of the LUMP is a copy of the EHP discussion document drafted by Bruce Wannan and the summary document addressing the relevant EVs that were covered in the meeting.

Regards

Neil Maver
Senior Environmental Officer
Environmental Services & Regulation, Northern Region
Department of Environment & Heritage Protection
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From: [redacted] sch4 Contrary to public interest [redacted]@riotinto.com]

Sent: Thursday, 1 August 2013 11:39 AM

To: Wannan Bruce

[redacted] sch4 Contrary to public interest Sharpe Dean; Maver Neil

Subject: RE: RTAW Land Use Management Plan

Hi Bruce,

Regarding RTA Weipa actions from the meeting we held last Wednesday 24th July, please find attached the spatial files for the remaining Conservation Management Zones.

In the Zip file attached the following files have been included;

- Zone 1A (Town)
- Zone 2A/2B (Operational Mining/Mine Access & ROM)

20-326

File A

4 of 104

- Zone 3A (Admin & support Infrastructure)
- Zone 3B (Operational Infrastructure)
- Zone 4A (Informal Agreements)
- Zone 4B (Contaminated Sites)
- Zone 5rA (Rehabilitation)
- Zone 5rB (Rehabilitation – Strategic Corridor)
- Zone 5rC (Strategic Very High Environmental Value)

With the addition of the above spatial files you should now have a complete set of Conservation Management Zones as reflected in the map on page 22 of the RTAW Land Use Management Plan.

Please don't hesitate to call me should there be any issues with loading the spatial files.

Thanks Bruce.

Regards

sch4 Contrary to public interest

From: [redacted] (RTAW/EPA)
Sent: Wednesday, 15 May 2013 7:13 AM
To: 'Maver Neil'
CC: sch4 Contrary to public interest; Sharpe Dean; Muller Renee
Subject: RE: RTAW Land Use Management Plan

Hi Neil,

As requested, please find attached the spatial files depicting the conservation zones of Zone 5 (5pA – 5mB).

In relation to the Spatial Layer 5pA (ESAs), please note that the mapping data for the Highest Astronomical Tide (HAT) and marine plants ESA's was not available from DEHP at the time of generating this data for the LUMP. These layers were generated through using RTAW mapping data/resources and referral to DEHP downloadable ESA maps. In the instant where features are determined to have inaccurate ESA boundaries these locations will be groundtruthed to firm up the boundaries in the event that new clearing areas are located in close proximity.

With regards to the spatial layer of 5cD/5cE (High Environmental Value/Environmental Buffer) as part of our pre-clearing surveys ahead of the annual clearing plan any inaccurate historic buffers will be groundtruthed and verified when new clearing areas are located in close proximity.

On a separate matter, there has been some recent correspondence regarding RTAW presenting to DEHP on the progress of the RMP and Completion Criteria. As discussed yesterday, are you able to confirm that DEHP are available to meet with RTAW on the afternoon of Wednesday July 24th?

Thanks Neil and look forward to hearing from you shortly.

Regards

sch4 Contrary to public interest

From: Maver Neil [<mailto:Neil.Maver@ehp.qld.gov.au>]
Sent: Wednesday, 24 April 2013 11:25 AM
To: sch4 Contrary to public interest (RTAW/EPA)
CC: sch4 Contrary to public interest (RTAW/EPA); Personal in (RTAW/EPA); Sharpe Dean; Muller Renee
Subject: RE: RTAW Land Use Management Plan

sch4 Contrary to public interest

I tried calling earlier today to provide you with an update on the progress of the LUMP review. A question put forward as part of the review so far relates to the availability of the relevant spatial data. I note that EHP has previously requested a shapefile of the various rehabilitation types/categories and that RTAW has committed to providing this in support the Rehabilitation Management Plan due for submission on 31 August 2013. In addition to this and to assist with the review of the LUMP, EHP requests a shapefile of the *Conservation Management Zones*, especially the sub-units of Zone 5 (5pA – 5mB) as identified on pages 12 – 21 of the LUMP.

It would be appreciated if you could please provide an indication on the availability of this information.

Thankyou

Neil Maver
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From: [redacted] sch4 Contrary to public interest [redacted]@riotinto.com]
Sent: Friday, 8 March 2013 10:00 AM
To: Sharpe Dean
Cc: Maver Neil; [redacted] sch4 Contrary to public interest (RTAWEIPA)
Subject: RTAW Land Use Management Plan

Hi Dean,

Please find attached correspondence in reply to your letter dated the 11th February 2013 regarding the Land Use Management Plan.

We have made amendments to the Land Use Management Pan to include aspects of Conservation Management Plan. Due to the size of the document I will need to send it via a large file transfer program (pipeline exchange).

Please let me know should you not receive the document.

Regards
Brad.

[redacted] sch4 Contrary to public interest

Rio Tinto Alcan
Weipa 4874 Australia

[redacted] sch4 Contrary to public interest

sch4 Contrary to public interest [redacted]@riotinto.com <http://www.riotinto.com/riotintoalcan>

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Rio Tinto Alcan Weipa Land Use Management Plan

Review of Adequacy of Conservation Management Zones

EA No Min100939109



Dr Bruce Wannan
Principal Biodiversity Planning Officer
Department of Environment and Heritage Protection

1 November 2013

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1. Introduction

This document is a review of the adequacy of proposed Conservation Management Zones to protect the environmental assets of the bauxite mining lease managed under Environmental Approval Mining Activities 100939109 (EA). This EA includes the following provisions under *Land Use Management Plan* (LUMP).

- (C6) The holder of this environmental authority must develop and implement a Land Use Management Plan (LUMP) for land within the ML 6024 and ML 7024 mining leases. This LUMP will be submitted to the administering authority within one (1) year of the date of this Environmental Authority. The LUMP must include:
- (a) plans and procedures for managing vegetation including buffer systems, pre-clearing surveys for any Category A, B or C ESAs and the presence of species classed as endangered, vulnerable, or near threatened under the *Nature Conservation Act 1992*;
 - (b) plans and procedures for the preparation and burning of vegetation cleared in the course of carrying out mining activities;
 - (c) plans and procedures for obtaining base line soils information covering the identification of soil units within areas to be disturbed by mining activities as nominated in the Plan of Operations at a scale of 1:100,000, in accordance with the *Guidelines for Surveying Soil and Land Resources, 2nd Edition* (McKenzie *et al.* 2008) or *Australian Soil and Land Survey Handbook, 3rd Edition* (National Committee on Soil and Terrain 2009) or *The Australian Soil Classification* (Isbell 2002) or similar recent guidelines;
 - (d) plans and procedures for managing acid sulphate soils so that when clearing in areas with acid sulphate soils or potential acid sulphate soils; the holder of this environmental authority must develop and implement an acid sulphate soil environmental management plan prepared in accordance with the *State Planning Policy 2/02 Guideline Planning and Managing Development Involving Acid Sulphate Soils* and the administering authority's *Queensland Acid Sulphate Soil Technical Manual (Version 2.2 September 2004)* or more recent editions or supplements to these documents when these become available.
- The holder of this environmental authority must treat and manage acid sulphate soils in accordance with the latest edition of the administering authority's Instructions for the treatment and management of acid sulphate soils;
- (e) plans and procedures for the carrying out of mining activities to prevent or minimise harm or the potential risk of causing harm to native fauna. The fauna management procedures must include training and awareness of staff and contractors, or access to suitably qualified contractors trained in fauna handling, to ensure that any planned fauna handling is undertaken by a suitably qualified person; and
 - (f) plans and procedures for an effective pest management program that includes but is not limited to the following:
 - i. identification of pest species and infestation areas;
 - ii. prevents and/or minimises the introduction and/or spread of pests; and
 - iii. control and management of pest outbreaks as a result of mining activities.
- (C7) Prior to conducting mining activities that involve significant disturbance to land, an assessment must be undertaken in accordance with the LUMP to determine the type and ecological value of any vegetation in such areas where the activity is proposed to take place.
- (C8) The assessment required by Condition (C7) must be undertaken by a suitably qualified person and include the carrying out of field validation surveys, observations and mapping of any Category A, B or C ESA's and the presence of species classed as endangered, vulnerable or near threatened under the *Nature Conservation Act 1992*, in accordance with the LUMP.

The area of lease being managed under this EA is 154,577 ha which consists of three parcels (see Figure 1):

- Vrilya Pt area 8,253 ha which is 60 kilometres north of the main area.
- Weipa area 145,076 ha
- Embley River/ Hey River area of 1,245 ha

This includes 22,911 ha of clearing associated with mining and infrastructure all within the Weipa and Andoom sections of the lease.

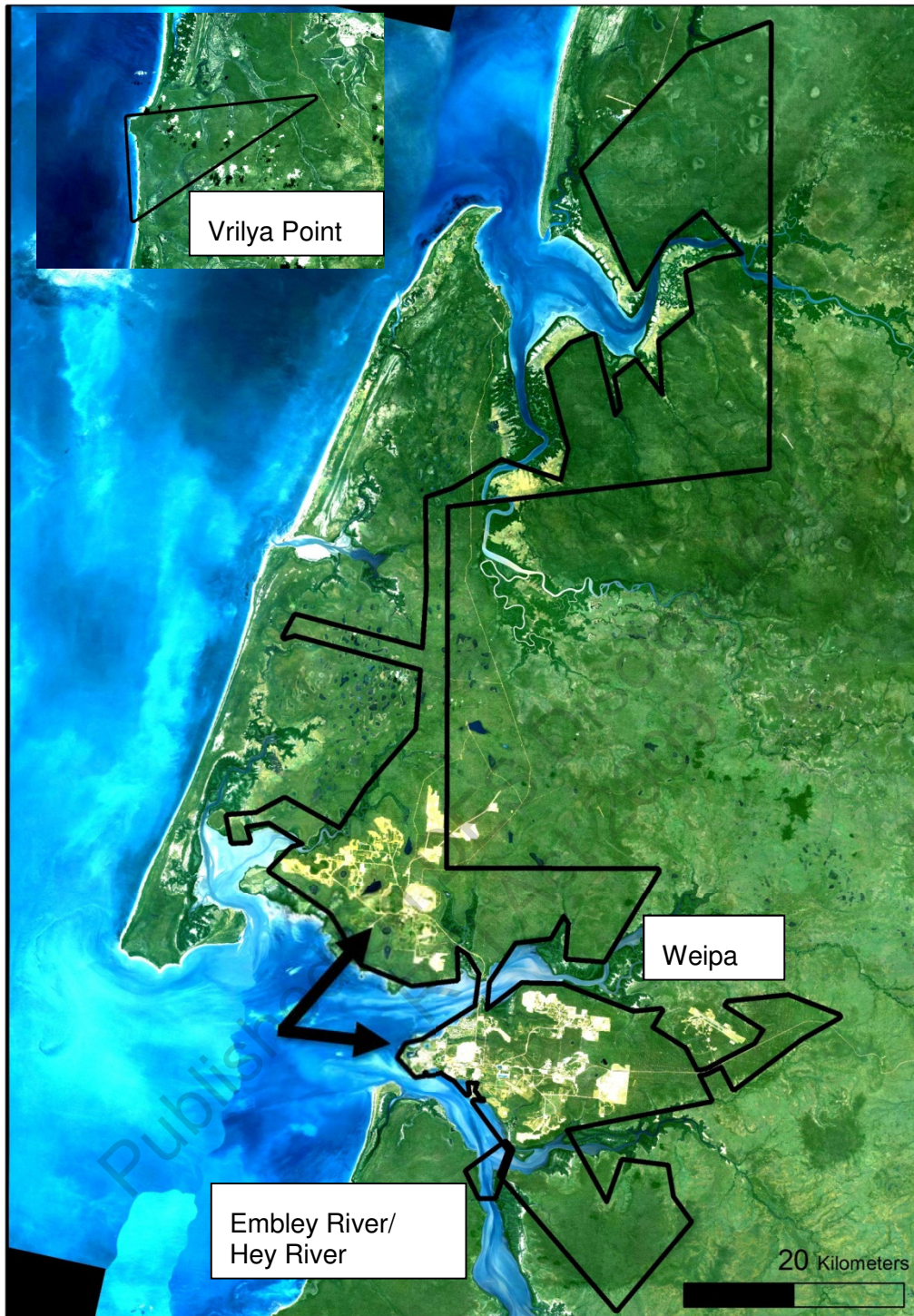


Figure 1 – Lease showing three lease parcels and existing extent of clearing 23,958 ha, 16%

The ongoing operation of the lease proposes the development and mining of a further 72,258 ha which would result in a total area of clearing of 95,168 ha (shown in Figure 2).

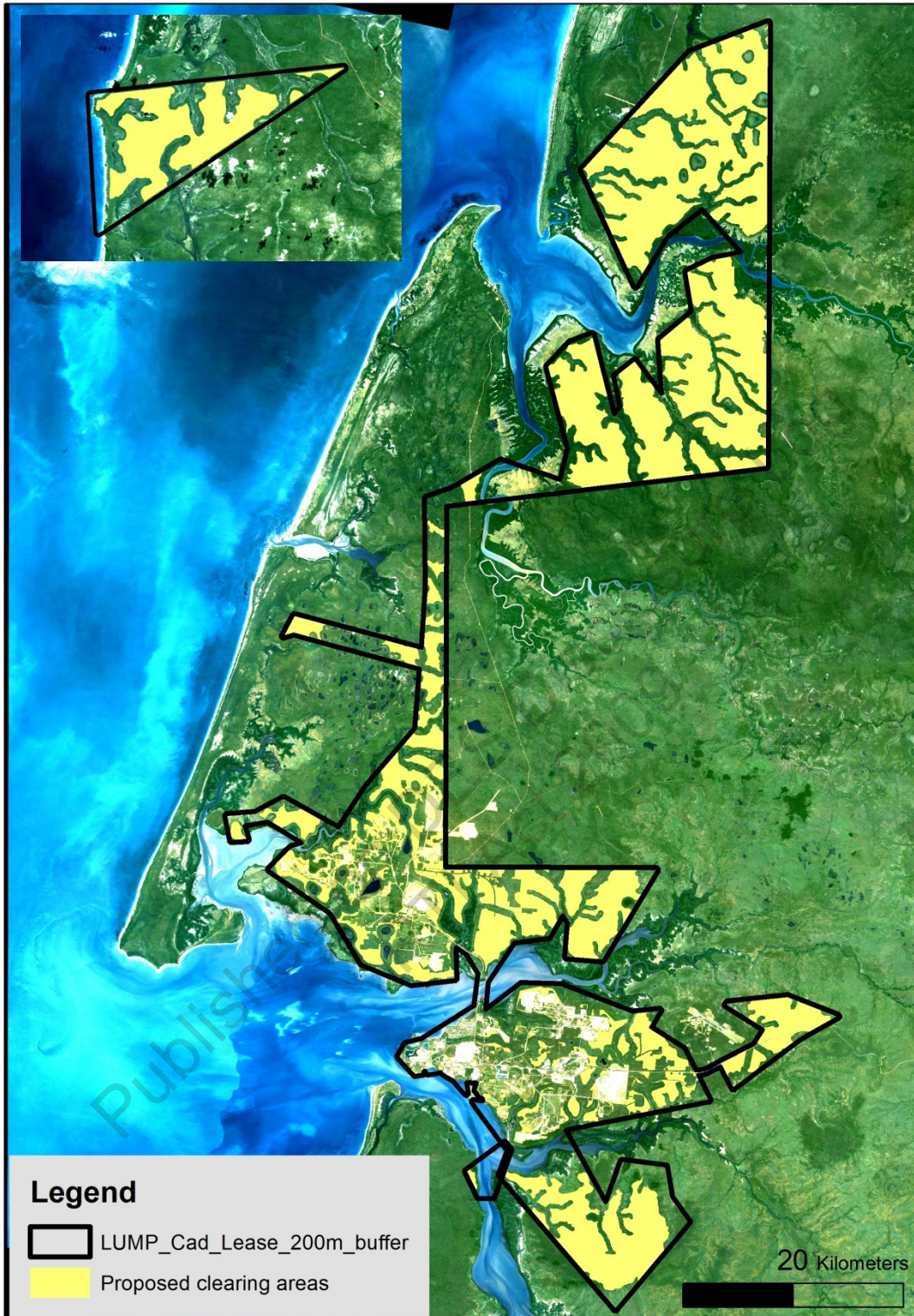


Figure 2 – Proposed extent of clearing approximately 95,168 ha of the lease (Weipa/ Andoom)

This Land Use Management Plan has been undertaken in order to manage the environmental impacts associated with the clearing of an additional 72, 258 ha. AS part of the LUMP there are a range of Conservation Management Zones proposed.

This report assesses the adequacy of the Conservation Management Zones (listed in the Table below) in their ability to protect the environmental values identified in Section 2.3.2 of the LUMP.

2. LUMP RTAW Conservation Management Zones

The LUMP includes Conservation Management Zones (CMZ) with five main categories. (see Table A below).

Table A – Proposed Conservation Management Zones

| Conservation Management Zones | Area Sept 2013 (ha) | Area cleared ² (ha) | Comments |
|-----------------------------------|---------------------|--------------------------------|--|
| 1A Town | 786.98 | 661 (84%) | |
| 2A Mining | | | |
| 2B Mine access ROM | 7734.7 | 7735 (100%) | |
| 3A Admin & support | 45.4 | 44 (98%) | |
| 3B Operational infrastructure | 2,295.8 | 2294 (100%) | |
| 4A Informal agreements | 1,028.0 | 944 (92%) | |
| 4B Contaminated sites - 102 sites | point | location | only - 95/102 sites – area not stated |
| 5pA ESA | 15,838.2 | 15 (0.1%) | Mostly LZ1 but does not include areas of marine veg at 12.002, 142.127; 12.405, 141.86; 12.578, 141.893; 12.739, 141.972 |
| 5pB ESA buffer | 5,749.0 | 242 (4%) | Major asset in this area is unmapped community of 3.3.12 between 3.5.2 and 3.1.x; area is burned to protect what? |
| 5pC East Weipa Frigatebird Roost | 135.9 | 100 (74%) | Large area cleared – priority to rehabilitate |
| 5cA Very High Environmental Value | 3,966.6 | 15 (0.4%) | Mostly f/w wetland but not all. Intertidal w/l at 12.406, 141.861 |
| 5cB Special MP areas | 80.59 | 0 (0%) | Adjacent to cleared areas |
| 5cC Uningan | 1,140.6 | 11 (0.9%) | Adjacent to cleared areas; NB maintain exist tracks (LUMP Table 2) |
| 5cD High Environmental Value | | | |
| 5cE Environmental Buffer | 29,635 | 105 (0.4%) | |
| 5rA Rehab | 10,063.2 | 10,063 (100%) | |
| 5rB Rehab Strategic Corridor | 297.4 | 297 (100%) | |
| 5rC Rehab Strategic V. High Value | 1,422.4 | 1422 (100%) | |
| 5rD Rehab Strategic Buffer | 80.1 | | Overlaps with other CMP areas, mostly cleared |
| 5mA Strategic corridor area | 874.8 | 0 (0%) | |
| 5mB Provisional mining | 72,258.64 | 10 (0%) | |
| TOTAL | | 153,353. 23,958 (16%) | |

1: Differs from the prov_min areas under Land Use Zone by removal of marine and near Marine areas

2: c.f. LUMP_clear

The categories which provide a high degree of protection to environmental values are CMP 5pA-C, 5cA-E and 5mA. These are collectively referred to as CMP5-Con Areas in the discussion below. All other CMP categories are directed at mining or infrastructure provision. CMP 5rD is uncertain as no shape file has been supplied for this category.

There would appear to be some drafting errors in the CMP zones above based on:

- 158 ha overlap between CMP5 Con Areas and others CMPs (5mB, 5rD, 5pC)
- Discrepancy between LUMP cleared total (22,910.7 ha) and the table total above (23,957 ha). The table total is based on intersects between LUMP_clear and each of the CMP zones.

This is also evident in the analysis of *Wetlands of National Significance* below (**Section 4.6 Other Conservation Areas**).

3. LUMP Environmental Values

In Section 2.3.2 (p. 23) the LUMP lists the environmental values and features occurring within the Lease area. These are listed below:

Legally Protected Areas

Environmentally Sensitive Areas (ESAs)
Conservation Reserves
Threatened Regional Ecosystems
Wild Rivers Area (Wenlock & Archer Rivers)
Matters of National *Environmental Significance Areas*
Other Conservation Areas

RTAW Protected areas - Sensitive Ecosystems

Special Value Areas

Traditional environment area
Unique landscape features
Terrestrial refugia/biodiversity hotspots
Aquatic refugia/biodiversity hotspots

Key Habitat Components

Habitat Corridors
Habitat Cores/nodes

Endangered, Vulnerable or Near Threatened (EVNT)

EVNT flora & Fauna list under Commonwealth legislation
EVNT flora & Fauna list under State legislation
Migratory Fauna listed under Commonwealth legislation

Other regionally significant flora and fauna

Significant flora
Significant fauna

Other Conservation/Biodiversity areas (identified in Govt assessments but not protected)

National Biodiversity/Conservation Areas
State Biodiversity/Conservation Areas

Rehabilitation areas Strategic rehabilitation areas

4. Assessment of Biodiversity Assets

This section analyses the biodiversity assets of the study area based on categories described in the LUMP (P. 23) and outlined above in Table C above. The details for values not fully described in the LUMP have been identified from the following sources:

- Map of Environmentally Sensitive Areas from Ecomaps (EHP 18 April 2013 – see Appendix A)
- *Biodiversity Planning Assessment for Cape York Peninsula* (Environment and Heritage Protection 2012a), according to the BAMB¹ methodology, that has been recently completed for the Cape York Peninsula.
- *Aquatic Conservation Assessment* (Environment and Heritage Protection, 2012b) according to the AquaBAMB² methodology that has been recently completed for the Cape York Peninsula.
- Existing databases such as HERBRECS, Regional Ecosystem Description Database, Wildlife Online Database (EHP), Queensland Herbarium (HERBRECS database), and *Atlas of Living Australia*.
- Cape York Peninsula Land Use Strategy (Abrahams *et al.* 1995).
- Other sources as cited.

¹ The methodology for this work is detailed in Environmental Protection Agency (2002)

² The methodology for this work is detailed in Clayton, P.D., Fielder, D.P., Howell, S. and Hill, C.J. (2006).

4.1 Environmentally Sensitive Areas (ESAs)

The LUMP (P.23) identifies the following Category B Environmentally Sensitive Areas (ESAs):

- Fish Habitat Area - namely the Albatross Bay Fish Habitat Area which occurs adjacent to the Andoom section of the lease; and,
- An area to the seaward side of the Highest Astronomical Tide (HAT) - numerous areas associated with coastline and estuaries located within the lease boundary;
- A place in which a marine plant is situated - similar to the above and including predominantly estuarine wetlands.

No areas of Pine River Fish Habitat Area occur within the proposed mining areas (CMP 5mB) although areas of clearing occur within 400 metres of the Fish Habitat Area.

Conclusion: No areas of Pine River Fish Habitat Area occur within the proposed mining areas although cleared areas do occur within 400 metres of the Fish Habitat Area

Action required: Redraft proposed mining areas to buffer Albatross Bay Fish Habitat Area by at least 200 metres. Ensure that runoff and land use activities do not adversely impact on Fish Habitat Areas.

4.2 Conservation Reserves

There are no Conservation Reserves (or Protected Areas) adjacent to the lease. Batavia National Park (Cape York Peninsula Aboriginal Land) lies 55km east of the lease

Conclusion: No Conservation Reserves (or Protected Areas) occur adjacent to the lease

Action required: No action required

4.3 Threatened Regional Ecosystems

There are 11 threatened REs recorded within the lease area with a total of 313 ha (see Table D) which constitutes 0.2% of the study area. Their occurrence is shown in Figure 3 below.

Most of the areas of occurrence are in coastal dunes landscapes (3.2.1, 3.2.2, 3.2.3, 3.2.6, 3.2.10, 3.2.13, 3.2.25). The remaining REs occur in alluvial (3.3.12, 3.3.39), bauxite (3.5.29) or sandstone (3.10.1) areas. The largest area is 117ha of 3.2.10 (*Eucalyptus tetradonta* and *Corymbia clarksoniana* +/- *E. brassiana* or *Erythrophleum chlorostachys* woodland on stabilised dunes) near Amboyninghy Pt.

Conclusion: Most threatened Regional ecosystems are protected within CMP5-Con Areas. Approximately 55 ha of OC Regional Ecosystem (3.2.10 and 3.2.25) included within CMP 5mB

Action required: Redraw proposed mining buffer (CMP 5mB) to exclude all threatened REs

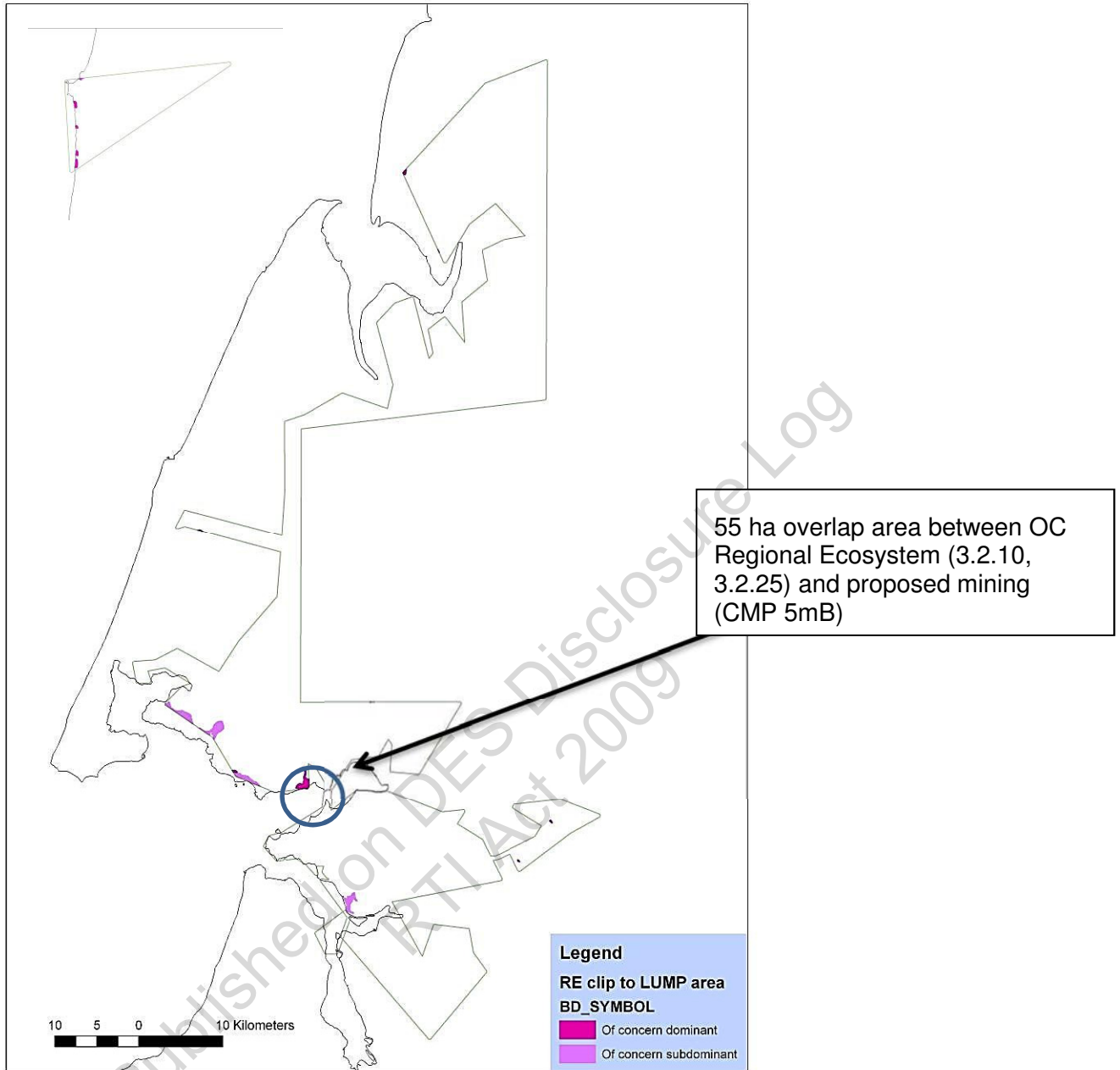


Figure 3 – Occurrence of threatened REs

4.4 Wild Rivers Area (Wenlock River)

The Wenlock Wild River Area overlaps with part of the lease area on the lower reaches of the Wenlock River (see Figure 4 below), namely:

- High Preservation Area – 3,807 ha (2.6%)
- Preservation Area – 2,111 ha (1.4%)

The values of the Wenlock Wild River area are based on its unmodified natural riverine processes and riparian functioning, diversity, healthy ecosystems and natural water quality.

The largely unmodified natural riverine processes are reflected in the extent and high level of natural integrity of the Port Musgrave Wetlands Aggregation, the excellent condition of riparian forests, floodplain complexes and the near pristine condition of the Wenlock River estuary.

The natural values of the Wild Rivers Area are recognised and described in the *Directory of Important Wetlands* (Department of Environment 2011).

Much of the Area is of high to very high level of integrity (remoteness & naturalness) and has been recognised for its near natural condition and high conservation values by *The Cape York Peninsula Land Use Strategy* (Abrahams *et al.* 1995), which identified areas of conservation significance on Cape York Peninsula. The Wenlock River riparian corridor was specifically recognised as an area of conservation significance.



Figure 4 –Wild River preservation boundaries

50% of the Wenlock Wild River area is included within CMP5-Con Areas. However, 50% lies within proposed mining areas (CMP 5mB - see Figure 4 above; 821.8 ha of High Preservation area and 1991.8 ha of Preservation area).

Conclusion: 50% of the Wenlock Wild River Preservation area is included within CMP5-Con Areas. However, 50% lies within areas proposed for mining (CMP 5mB)

Action required: Redraw CMP 5mB areas to exclude 2,814 ha of Wenlock River Preservation areas within to protect riverine processes and natural values of system.

4.5 Matters of National Environmental Significance Areas

The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places—defined in the EPBC Act as matters of national environmental significance (MNES).

A search of the MNES database for the two areas (north & south) across the lease is included in Appendix B. They listed the following:

- National Heritage Places 1 (Cape York Peninsula) see discussion below
- Commonwealth Marine Areas 1 (North Marine Area) see discussion below
- Listed Threatened Species 35 (see discussion in Section 4.14)
- Listed Migratory species 35 (see discussion in Section 4.15)

National Heritage Places

There is a single National Heritage Place listed for the search areas identified as Cape York Peninsula. This is a nominated place on the Natural Heritage List and consists of 13.6 million ha from Thursday Island south to the Mitchell River. The identified values of this area are detailed in Appendix C.

Conclusion: 100% of the LUMP area falls within Cape York Peninsula Natural Heritage Place (ID 105968)

Action required: Investigate the occurrence of National Heritage values across the lease area and protect using the CMP system.

Commonwealth Marine Areas

The study area adjoins a Commonwealth Marine Area identified as the North Marine Region as shown below.

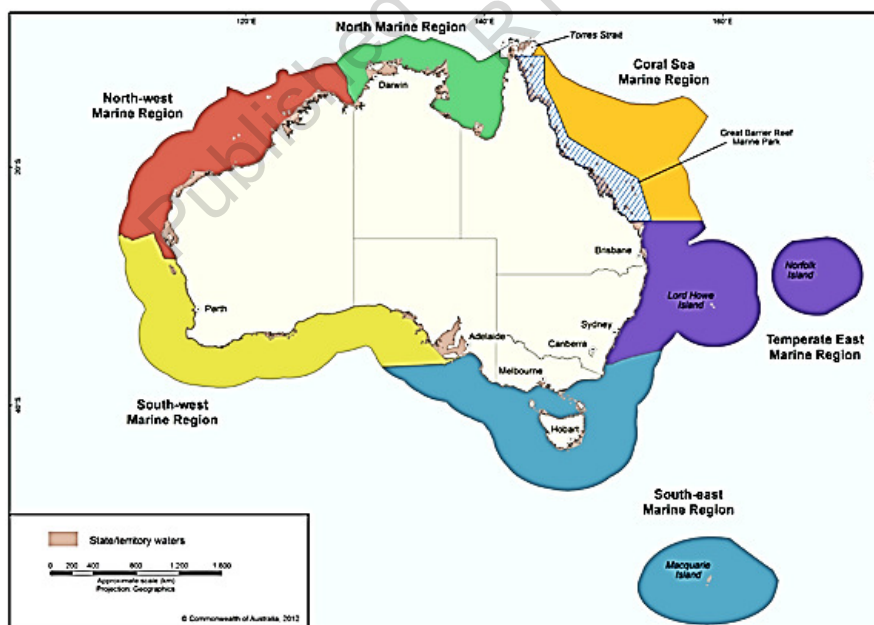


Figure 5 – Commonwealth Marine Areas (from *Marine Bioregional Plan for the North Marine Region 2012 MBP*)

The values of this area close to the study area include the following key ecological features (MBP 2012):

Gulf of Carpentaria basin – which is of regional importance for biodiversity and aggregations of marine life. It is one of the few remaining near-pristine marine environments in the world. Primary productivity in the Gulf of Carpentaria basin is mainly driven by cyanobacteria that fix nitrogen, but is also strongly influenced by seasonal processes. The soft sediments of the basin are characterised by moderately abundant and diverse communities of infauna and mobile epifauna dominated by polychaetes, crustaceans, molluscs and echinoderms. The basin also supports assemblages of pelagic fish species including planktivorous and schooling fish, with top predators such as shark, snapper, tuna and mackerel.

Gulf of Carpentaria coastal zone - which is described as High productivity, aggregations of marine life, biodiversity and endemism. Nutrient inflow from rivers adjacent to the North Marine Region generates higher productivity and more diverse and abundant biota within the Gulf of Carpentaria coastal zone than elsewhere in the region. The coastal zone is near pristine and supports many protected species such as marine turtles, dugongs and sawfish. Ecosystem processes and connectivity remain intact; river flows are mostly uninterrupted by artificial barriers and healthy, diverse estuarine and coastal ecosystems support many species that move between freshwater and saltwater environments

Other conservation values of this area include threatened species, migratory species, cetaceans, and marine species.

Conclusion: Commonwealth Marine Areas (Gulf of Carpentaria Basin, Gulf of Carpentaria Coastal Zone) lie offshore from lease area.

Actions required: Undertake appropriate management of tidal/ intertidal areas to reduce impacts on receiving coastal waters and threatened species (see Section 4.14 and Appendix F). Ensure that runoff and land use activities do not adversely impact on Commonwealth Marine Areas

4.6 Other Conservation Areas

The EPBC Act Protected Matters Report also listed five Natural Places on the Register of the National Estate (RNE), namely: Pennefather / Port Musgrave, Wik Region - Aurukun Place, Bertiehaugh Dry Vine Forests, Jardine River Swamps, North East Cape York, and two Indigenous Places on the RNE, namely: Janie Creek Sivri Story Site and Weipa Shell Mounds Area.

Two of these RNE areas do not occur within the study area, namely: Bertiehaugh Dry Vine Forests and Janie Creek Sivri Story Site and two of the areas are indicative only (Pennefather / Port Musgrave, Wik Region - Aurukun Place). The values of the other areas are described at <http://www.environment.gov.au/cgi-bin/ahdb/search.pl>. and mapped below.

The three register areas overlap the study area as shown in Table B below. These areas total 18,387.8 ha.

Table B - Register of the National Estate areas in the study area

| Place ID | Name | Class | Status | Areas (h) |
|---------------|-------------------------|------------|------------|------------------|
| 4/06/270/0003 | North East Cape York | Natural | Registered | 6,976.78 |
| 4/06/270/0033 | Jardine River Swamps | Natural | Registered | 7,657.23 |
| 4/06/270/0005 | Weipa Shell Mounds Area | Indigenous | Registered | 3,753.78 |
| Total | | | | 18,387.79 |

The first two places occur in the northern part of the lease and overlap all of the proposed mining areas (CMP 5mB) – 4,013 ha for Jardine River Swamps and 3,659 ha for North East Cape York. As these co-occur the total area of proposed mining affected is 4,013 ha.

Conclusion: 4,013 ha of two RNE areas (North East Cape York, Jardine River Swamps) occur within proposed mining areas (CMP 5mB) across the northern part of the lease area. 1,425 ha of one RNE area (Weipa Shell Mounds Area) occurs with CMP 5mB in southern part of the lease area.

Actions required: Avoid impacts of mining on RNE areas (northern lease). Exclude 1,425 ha of Weipa shell mounds from CMP 5mB.

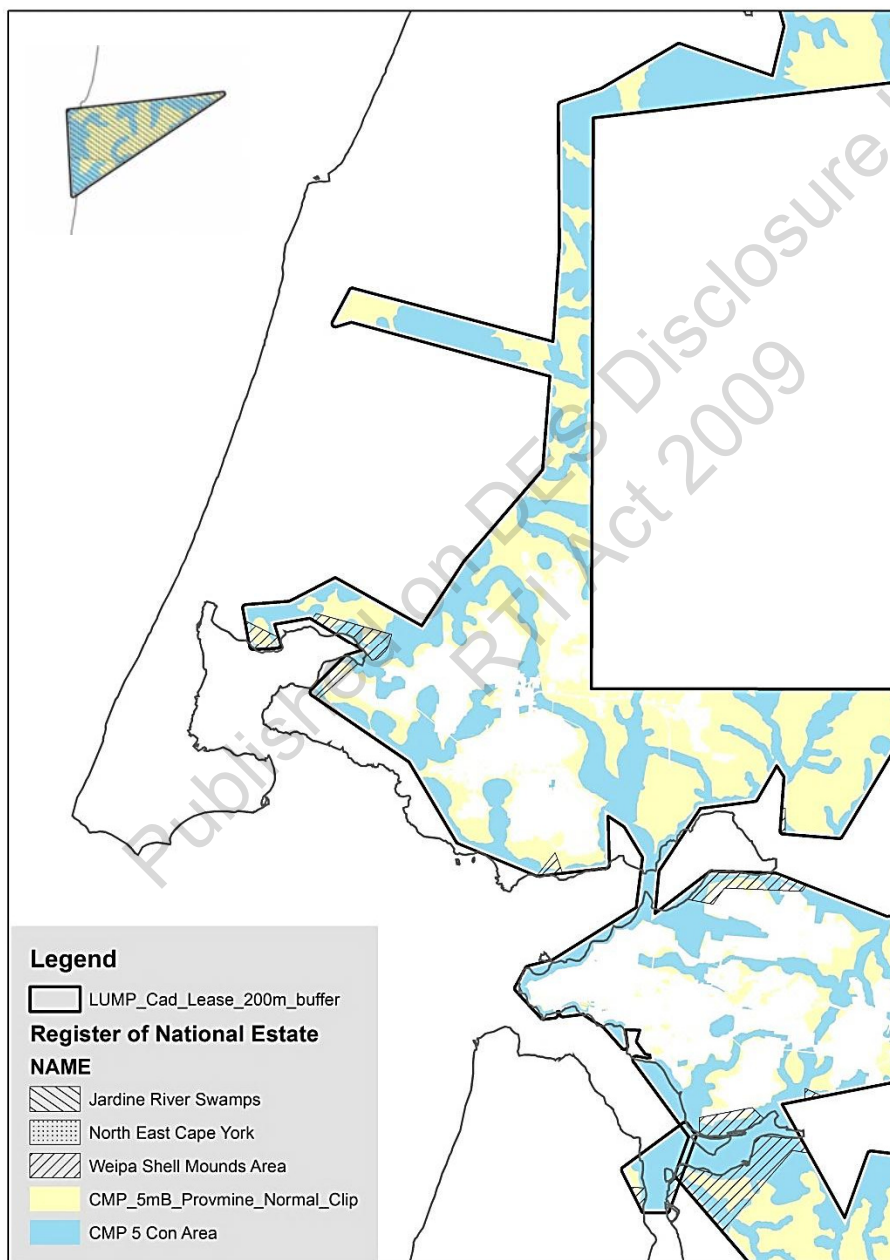


Figure 6 – Register of National Estate Areas

The EPBC Act Protected Matters Report also listed Nationally Important Wetlands namely:

- Port Musgrave Aggregation,
- Skardon River - Cotterell River Aggregation,
- Jardine River Wetlands Aggregation

The values of these areas are described at

<http://www.environment.gov.au/water/topics/wetlands/database/diwa.html> and the areas are identified in the figure below

Table C – Nationally Important Wetland Aggregations within the study area

| Wetland Aggregations | Total area (ha) | Area within lease (ha) |
|---|------------------|------------------------|
| Jardine River Wetlands Aggregation | 81,764.3 | 744.4 |
| Skardon River - Cotterell River Aggregation | 63,221.6 | 341.1 |
| Port Musgrave Aggregation | 52,711.4 | 6,231.6 |
| Total | 197,697.3 | 7,317.1 |

The three wetland aggregations overlap the study area as shown in Table C above. These areas total 7,317 ha or 5% of the terrestrial study area and are shown below.

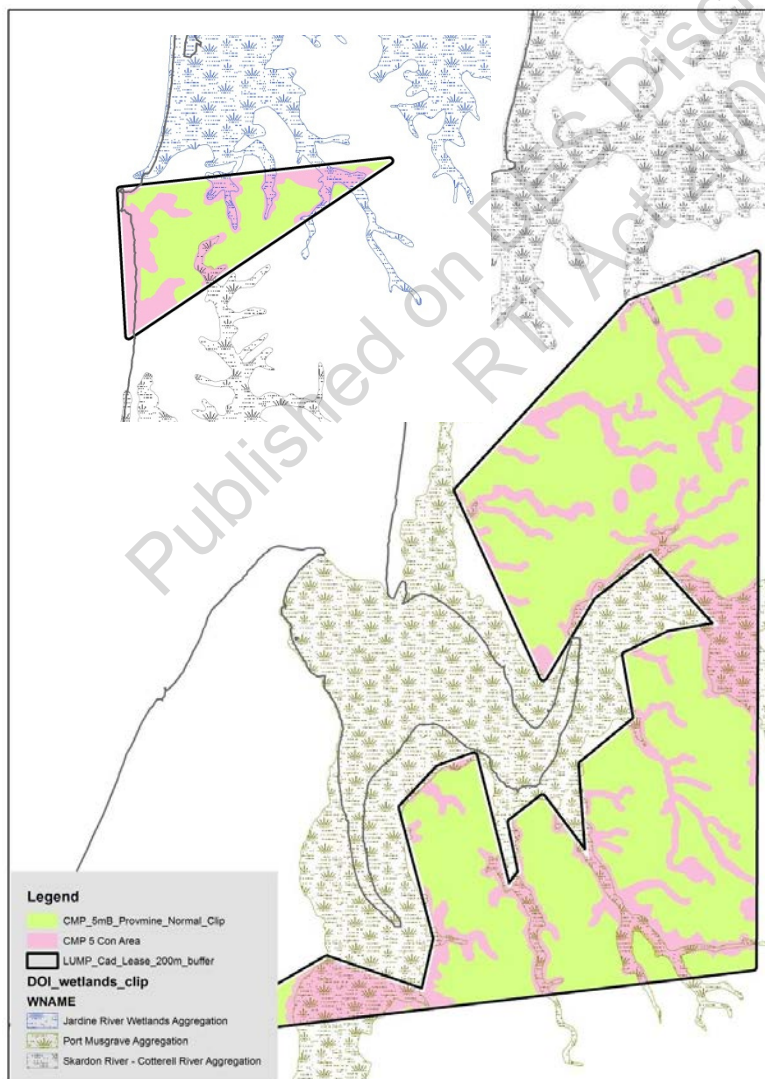


Figure 7 – Nationally Important Wetlands

In most areas the Nationally Important Wetlands are protected by CMP 5 Con Areas. However on Palm Creek and other areas there is a small area of overlap between CMP 5 Con Areas and 5mB Provisional mining.

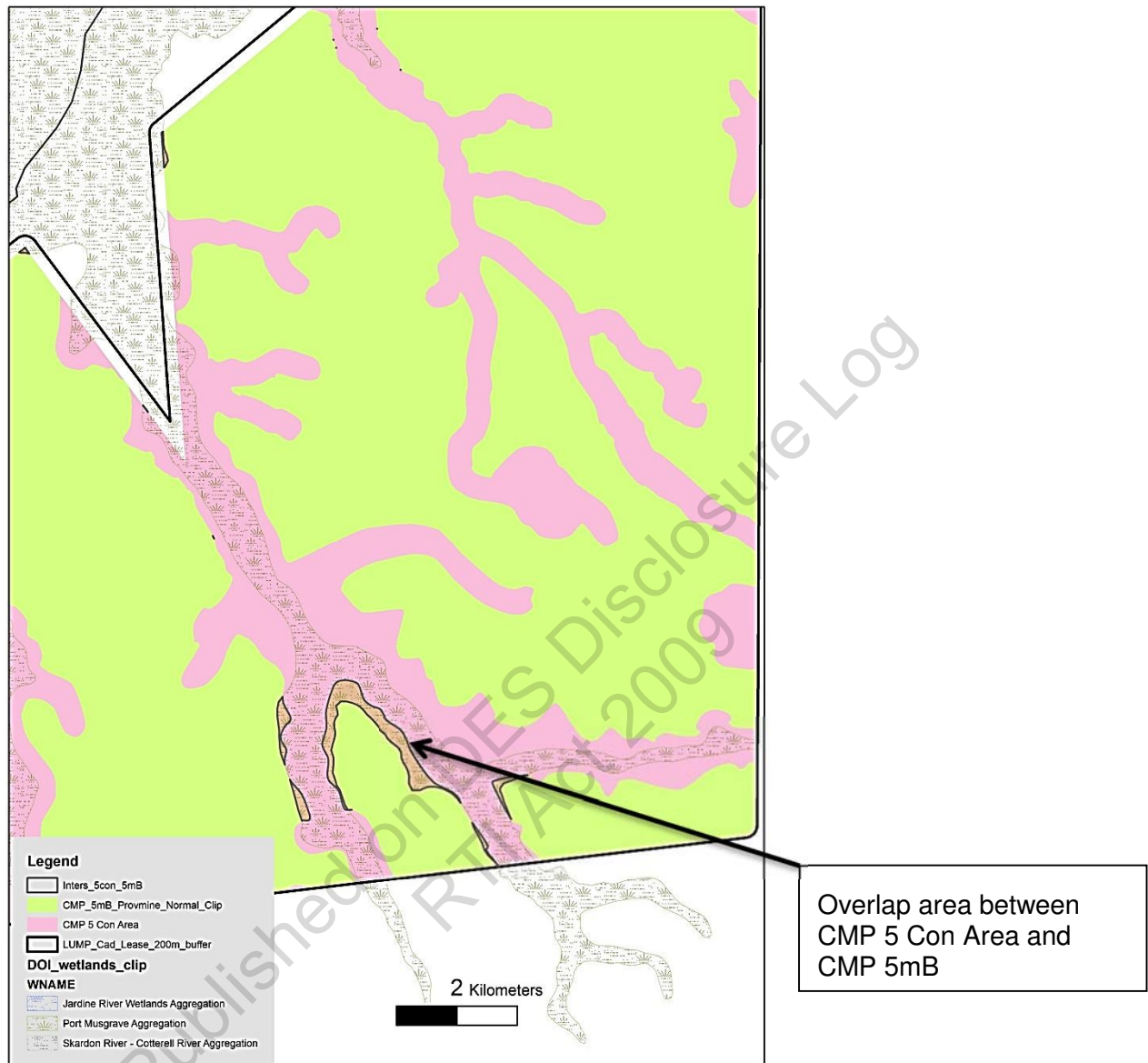


Figure 8 – Nationally Important Wetlands – example of overlap with areas proposed for mining

Conclusion: 7,317 ha of three Nationally Important Wetlands (Jardine River, Port Musgrave, Skardon River-Cotterell River) occur within the lease area. Most NIW are protected by CMP 5 Con Areas. 128 ha fall within areas proposed for mining (CMP 5mB); some of these may be drafting errors.

Actions required: Exclude 128 ha of *Nationally Important Wetlands* from proposed mining areas. Ensure at least 200 metre buffers from *Nationally Important Wetlands*.

4.7 Sensitive vegetation

LUMP-Table 3 (p26, Section 2.3.2.3) listed 34 REs as *Sensitive Vegetation* which constitute 17.3% of the study area.

Some of the listed REs in Lump-Table 3 differ from those recognised by the current Regional Ecosystem mapping (Version 7 see Appendix E); Table D below, identifies these differences.

Table D — Differences between LUMP Sensitive Vegetation (Table 3 p26 – RE Ver. 6) & RE Version 7

| RE | RTAW Land Units | Regional Ecosystems recorded by LUMP but not in RE Version 7 | % of area (RE V7) |
|--|-----------------|--|-------------------|
| 3.3.25a | - | <i>Eucalyptus leptophleba</i> +/- <i>Corymbia tessellaris</i> woodland on riverine levees and floodplains | NA ¹ |
| 3.3.65 | - | Ephemeral lakes and lagoons on alluvial plains and depressions | NA ¹ |
| 3.3.66x1 a | - | Permanent lakes and lagoons, frequently with fringing woodlands | NA ¹ |
| 3.7.4 | 5k | <i>Corymbia stockeri</i> , <i>Eucalyptus tetradonta</i> woodland on ironstone knolls & slopes | NA ¹ |
| Recorded for Study area by Regional Ecosystems (Version 7) but not recorded in LUMP as Sensitive Vegetation | | | |
| 3.2.13 | | Evergreen notophyll vine forest on beach ridges on the east coast | <0.01% |
| 3.5.2 | | <i>Eucalyptus tetradonta</i> , <i>Corymbia nesophila</i> tall woodland on deeply weathered plateaus and remnants | 61.8% |
| 3.5.11 | | <i>Eucalyptus tetradonta</i> , <i>Corymbia nesophila</i> woodland on lower slopes of plains and rises | 2.1% |
| 3.5.7x2a | | <i>Eucalyptus tetradonta</i> +/- <i>Corymbia clarksoniana</i> woodland. Mainly occurs on sand plains | 2.1% |
| 3.5.22c/22x2 | | <i>Corymbia clarksoniana</i> +/- <i>Erythrophleum chlorostachys</i> +/- <i>Corymbia</i> spp. +/- <i>Eucalyptus</i> spp. woodland on plains | 1.2% |
| 3.5.10/ 10a/ 10x1 | | <i>Eucalyptus tetradonta</i> , <i>Corymbia nesophila</i> woodland on sandy gently undulating rises and low hills | 0.9% |
| 3.5.29 | | <i>Sorghum plumosum</i> var. <i>plumosum</i> +/- <i>Themeda arguens</i> closed tussock grassland on erosional plains | <0.01% |
| 3.9.4a | | <i>Eucalyptus leptophleba</i> +/- <i>Corymbia papuana</i> open woodland on rolling plains | 0.1% |
| 3.10.1d | | Evergreen mesophyll/notophyll vine forest. Restricted to sandstone gullies | <0.01% |
| Total | | | 66.1% |

1: NA - Regional Ecosystem not recorded in Version 7

The following are the main differences:

- Absence of LUMP listed REs 3.3.25, 3.3.65, 3.3.66x1, 3.7.4 from Version 7 coverage
- Occurrence in Version 7 of REs 3.2.13, 3.5.11, 3.5.7x2a, 3.5.22c/22x2, 3.5.10/ 10a/ 10x1, 3.5.29, 3.9.4a, 3.10.1d which were not listed in the LUMP
- Regional Ecosystem 3.5.2 is not listed by the LUMP as Sensitive Vegetation as it is the main vegetation cleared for bauxite mining.

A range of regional ecosystems can be identified as significant including those identified as:

- Wetlands
- Threatened (i.e. of concern/ endangered)
- Limited overall extent (i.e. < 10,000ha/ < 1,000 ha)

- Unrepresented or poorly represented in protected areas (i.e. < 4%)
- Restricted occurrence (i.e. to a single subregion/ or with rare occurrences outside)

These Regional Ecosystems are further discussed below.

WETLANDS

A range of wetlands occur in the study area identified by the following REs in the table below.

Table E - Wetland REs collated from Appendix E (Version 7)

| Wetland type | Regional Ecosystems | Area (%) |
|--|---|---------------|
| Estuarine wetlands (e.g. mangroves) | REs 3.1.1, 3.1.3, 3.1.5, 3.1.6 | 5.5% |
| Palustrine wetland (e.g. vegetated swamp). | 3.2.3, 3.3.12, 3.3.14, 3.3.32, 3.3.39, 3.3.63, 3.3.64 | 3.6% |
| Riverine wetland or fringing riverine wetland. | 3.3.5, 3.3.9, 3.3.10, | 1.4% |
| Floodplain (other than floodplain wetlands). | 3.3.60, 3.3.61, | 1.4% |
| Total | | 11.90% |

The Queensland Wetland Mapping identifies 13.4% of the study area as wetlands (estuarine 12,777 ha (8.2%), palustrine 6816 ha (4.4%), riverine 256 ha (0.2%), lacustrine 1,010 with H3C1 modifier (0.6%). However, the lacustrine wetlands (0.6%) are artificial stand-alone water storages. The most significant differences between these two data layers is the larger area mapped as estuarine versus riverine by QWM due to its mapping rules. Additionally, it should be noted that the Queensland Wetland Mapping calculation does not include *Floodplain (other than floodplain wetlands)*.

In most areas the identified wetlands are protected by CMP 5 Con Areas. However, there are a number of mapped wetlands that are identified within 5mB Provisional mining (see Figure 8 below) and wetlands that remain unmapped by Regional Ecosystem mapping.

Conclusion: A range of wetlands are mapped within the lease. Most are protected by their inclusion within CMP 5 Con Areas. However, 250 ha lie within areas proposed for mining (see example Fig. 9 below).

Actions required: Exclude 250 ha of wetlands from areas proposed for mining. Ensure at least 100 buffers for all natural wetlands from proposed mining areas.

Threatened (i.e. of concern/ endangered)

These REs have been described and mapped in **Section 4.3** above.

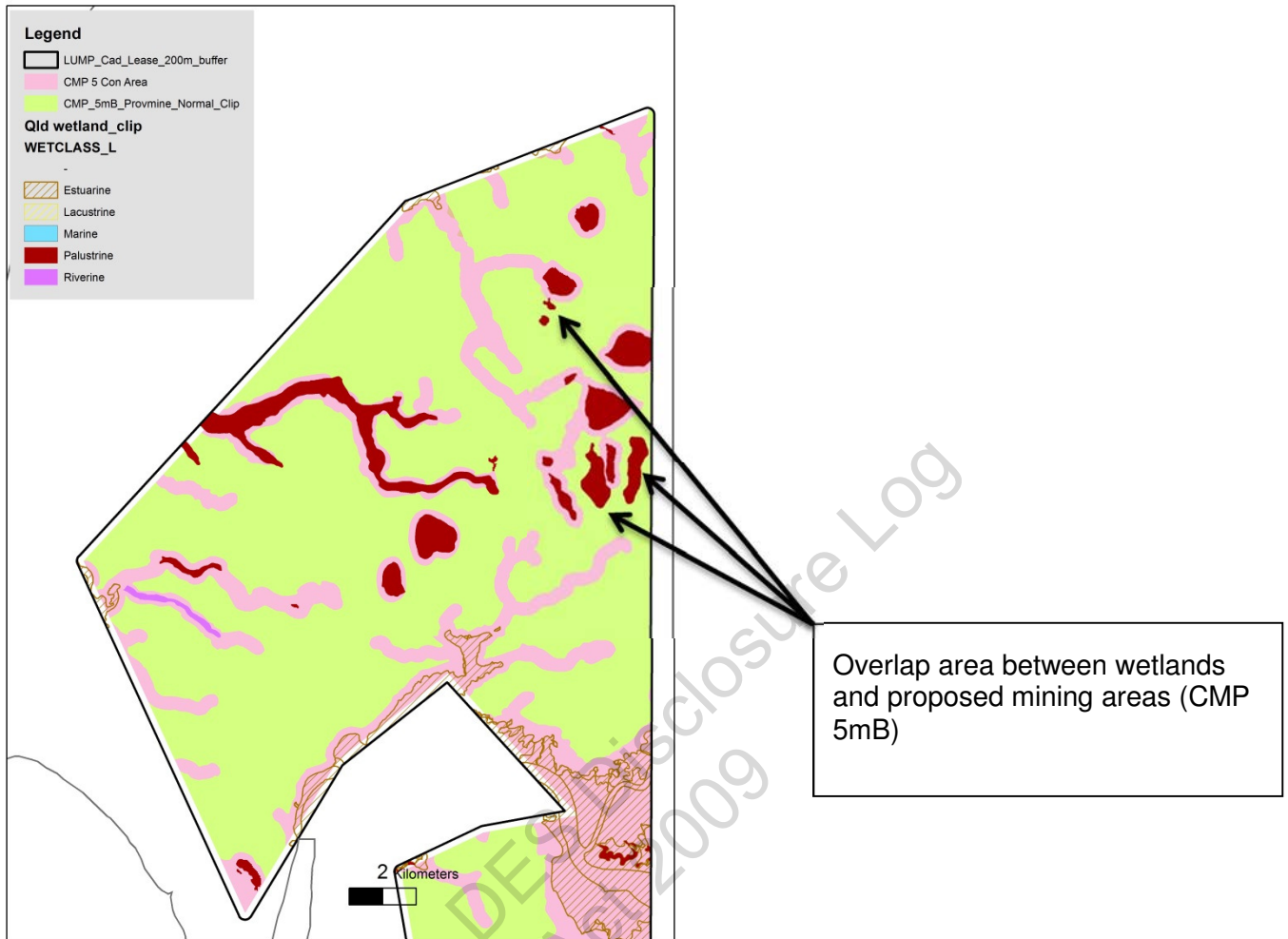


Figure 9 – Overlap area between mapped wetlands and proposed mining areas

Limited overall extent (i.e. < 10,000ha/ < 1,000 ha)

There are 8 REs which are of limited extent (i.e. < 10,000 ha), namely: 3.2.1a, 3.2.3, 3.2.6a, 3.2.13, 3.2.25, 3.3.12, 3.3.39, 3.10.1d). Together these constitute 172 ha or 0.1% of the study area; they are shown on Figure 10 below.

In the northern part of the lease these all occur within the CMP 5 Con Areas. In the southern part of the lease these mostly occur within the CMP 5 Con Areas but there appears to be a potential conflict area near Red Beach (see Figure 10 below) related to a 52 ha polygon area of (3.2.10/3.2.25/3.2.49) which is also identified in Section 4.3 above (Threatened Regional Ecosystems).

Conclusion: A range of REs of limited extent occur within the lease. Most are protected by their inclusion within CMP 5 Con Areas. However, a small area (55 ha, also threatened Regional Ecosystem) near Red Beach lies within areas proposed for mining (5mB).

Actions required: Redraw proposed mining buffer (CMP 5mB) to exclude 55 ha of limited extent REs in Red Beach area.

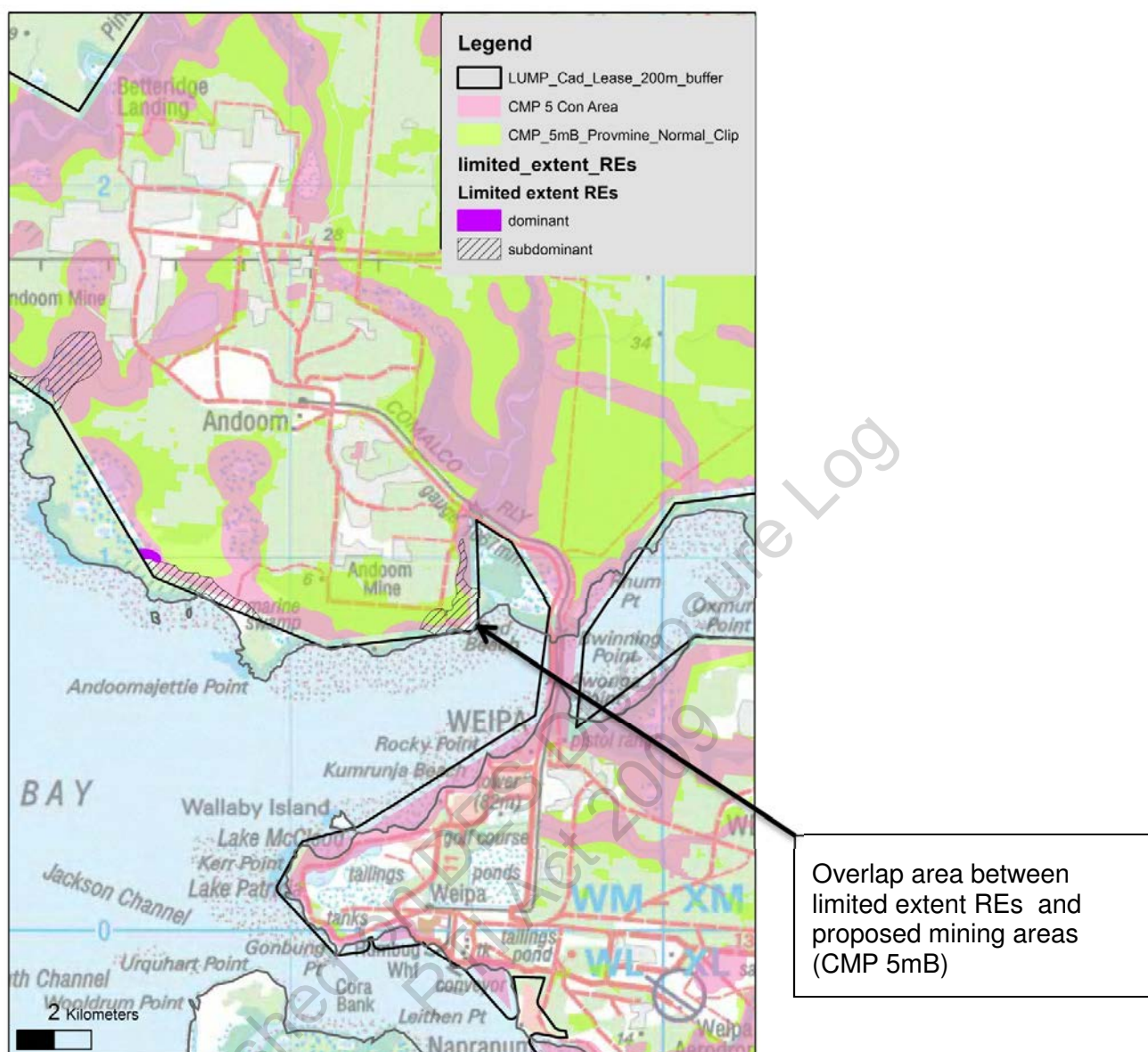


Figure 10 – Regional ecosystems of limited extent – overlap with proposed mining areas

Unrepresented or poorly represented in protected areas (i.e. < 4%)

There are three REs which have no representation (3.3.39, 3.3.63, 3.7.3) and nine which have a low level of representation in protected areas (3.2.3, 3.10.1d, 3.2.6a, 3.3.61a, 3.3.32, 3.2.2a, 3.2.5a, 3.5.11, 3.5.2). These are listed below in the Table F and illustrated in Figure 11.

The three REs with no representation constitute 3,317 ha and the wetland REs (3.3.39, 3.3.63) mostly occur along Dulcie Creek, Wenlock River and at the margins of the lease area. RE 3.7.3 mostly occurs in the southern and higher areas of the lease.

The nine REs with a low level of representation together constitute 95,581 ha. Over 96% of this area is Regional Ecosystem 3.5.2 which occurs over the bauxite resource. The remaining REs constitute 3,288 ha and mostly consist of:

- woodland on lower slopes of plateaux (3,145 ha - 3.5.11),
- vine forest in gullies (10 ha - 3.10.1d),
- small areas of littoral vegetation (129 ha - 3.2.2a, 3.2.3, 3.2.5a, 3.2.6a), and
- wetland areas at the margin of marine swamps (1.9 ha - 3.3.32, 3.3.61a).

Table F - REs that are poorly represented in protected areas

| RE | RTAW Land Unit | Area (ha) | Extent Reserved | Description | Overlap with CMP 5mB (ha) |
|--------------|------------------|------------------|-------------------|--|---------------------------|
| 3.7.3 | 5b | 2,263.34 | No representation | <i>Eucalyptus cullenii</i> +/- <i>E. tetradonta</i> woodland on erosional escarpments and plains | 921.8 |
| 3.3.63 | 12b | 1,052.96 | No representation | Closed sedgeland dominated by <i>Eleocharis dulcis</i> on seasonally flooded marine plains | 3.9 |
| 3.3.39 | No RTA land unit | 0.86 | No representation | Semi-deciduous microphyll vine forest +/- <i>Melaleuca</i> spp. Associated with sinkholes | |
| Total | | 3,317 | | | 926 |
| 3.5.2 | 2b | 92,293.84 | Low | <i>Eucalyptus tetradonta</i> , <i>Corymbia nesophila</i> tall woodland on deeply weathered plateaus and remnants | 65,595.4 |
| 3.5.11 | | 3,145.10 | Low | <i>Eucalyptus tetradonta</i> , <i>Corymbia nesophila</i> woodland on lower slopes of plains and rises | 1316.7 |
| 3.2.5a | 7a | 79.62 | Low | <i>Acacia crassicaarpa</i> +/- <i>Syzygium suborbiculare</i> +/- <i>Parinari nonda</i> woodland. On beach ridges | 1.0 |
| 3.2.3 | 5a | 25.58 | Low | <i>Melaleuca dealbata</i> +/- <i>Acacia crassicaarpa</i> open forest. dune swales on the west coast | 0.33 |
| 3.2.2a | 3a | 23.05 | Low | Semi-deciduous vine thicket on coastal dunes and beach ridges | |
| 3.10.1d | | 10.24 | Low | Evergreen mesophyll/notophyll vine forest. Restricted to sandstone gullies | |
| 3.3.32 | 7b | 2.0 | Low | <i>Melaleuca viridiflora</i> +/- <i>M. saligna</i> woodland in sinkholes and drainage depressions | |
| 3.3.61a | No RTA land unit | 1.69 | Low | <i>Panicum</i> spp., <i>Fimbristylis</i> spp. tussock grassland on coastal alluvial plains | |
| 3.2.6a | 5c | 0.35 | Low | <i>Casuarina equisetifolia</i> woodland. Occurs on foredunes | |
| Total | | 95,581.47 | | | 66,913 |

There is 3,317 ha of REs that are *unrepresented in protected areas* which occur in CMP 5 Con Areas. There is:

- 926 ha of REs that are unrepresented in protected areas which are proposed for future mining (CMP 5mb).
- 1,318 ha of REs (non-RE 3.5.2) that are poorly represented in protected areas which are included within proposed mining areas.

These include mostly small areas as indicated on the figure below. The largest single occurrence is south of the Embley River (see arrow below) which is contains 680 ha of Regional Ecosystem 3.7.3.

Conclusion: A range of REs that are unrepresented in PAs occur within the lease. Most are protected by their inclusion within CMP 5 Con Areas. However, there are 926 ha within areas proposed for mining (5mB). There is also 1,318 ha of poorly represented REs (non-RE 3.5.2) which are included within proposed mining areas

Actions required: Redraw proposed mining buffer (CMP 5mB) to exclude 926 ha of unrepresented REs (3.7.3, 3.3.63) and 1,318 ha of poorly represented REs (3.5.11, 3.2.5, 3.2.3).

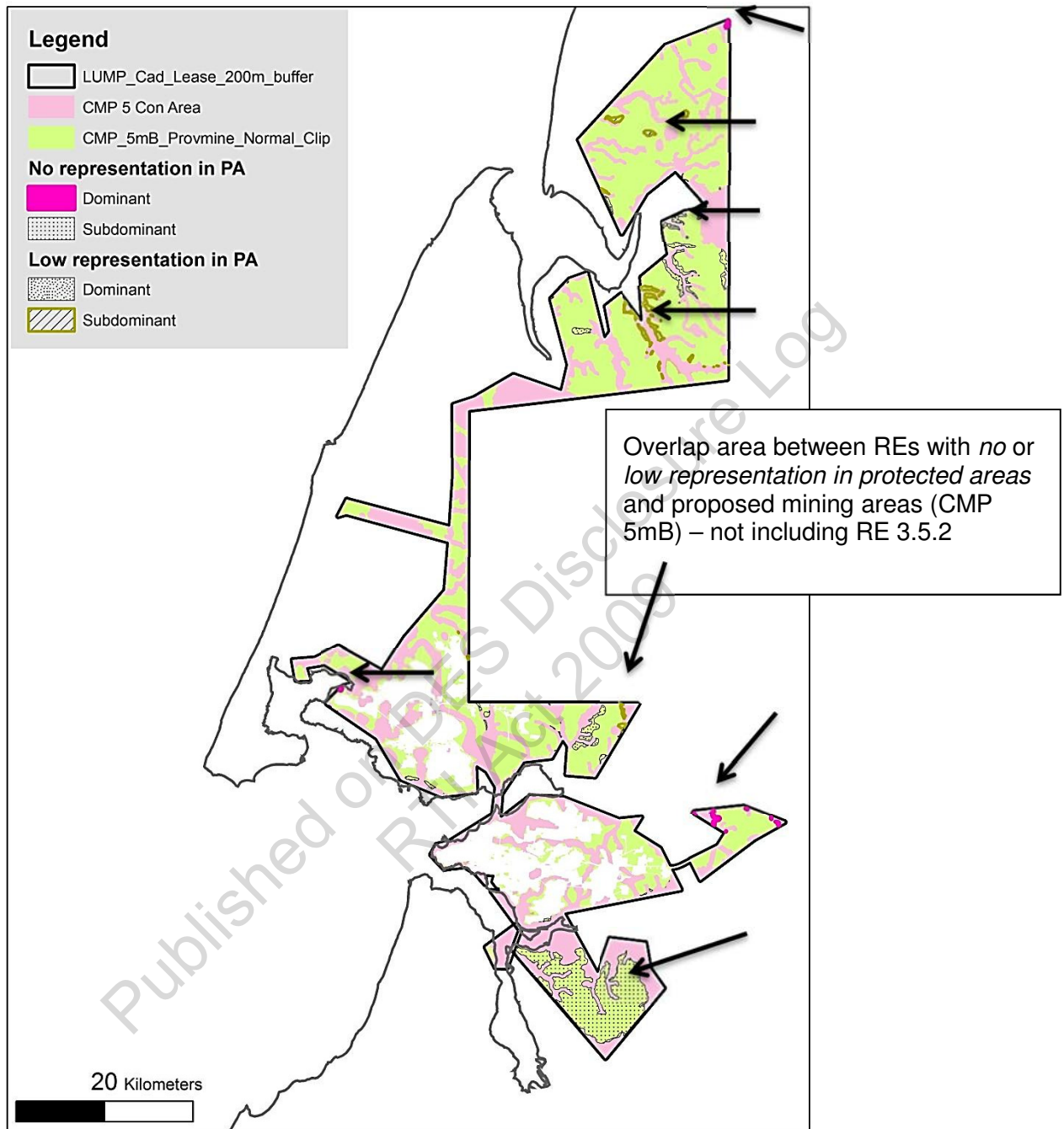


Figure 11 – Regional ecosystems with no or low representation that occur in proposed mining areas (excluding RE 3.5.2)

There are also 65,595 ha of Regional Ecosystem 3.5.2 that are proposed for mining as shown in the Figure 12 below. One of these areas, south-east of the Embley River, includes the unrepresented Regional Ecosystem 3.7.3 as a subdominant (see Figure 12 below). Indications from satellite imagery are that the vegetation of south-east of the Embley River, mapped as 3.5.2/3.7.3, is likely to be a complex mosaic including mesic communities and spring fields (see further discussion below).

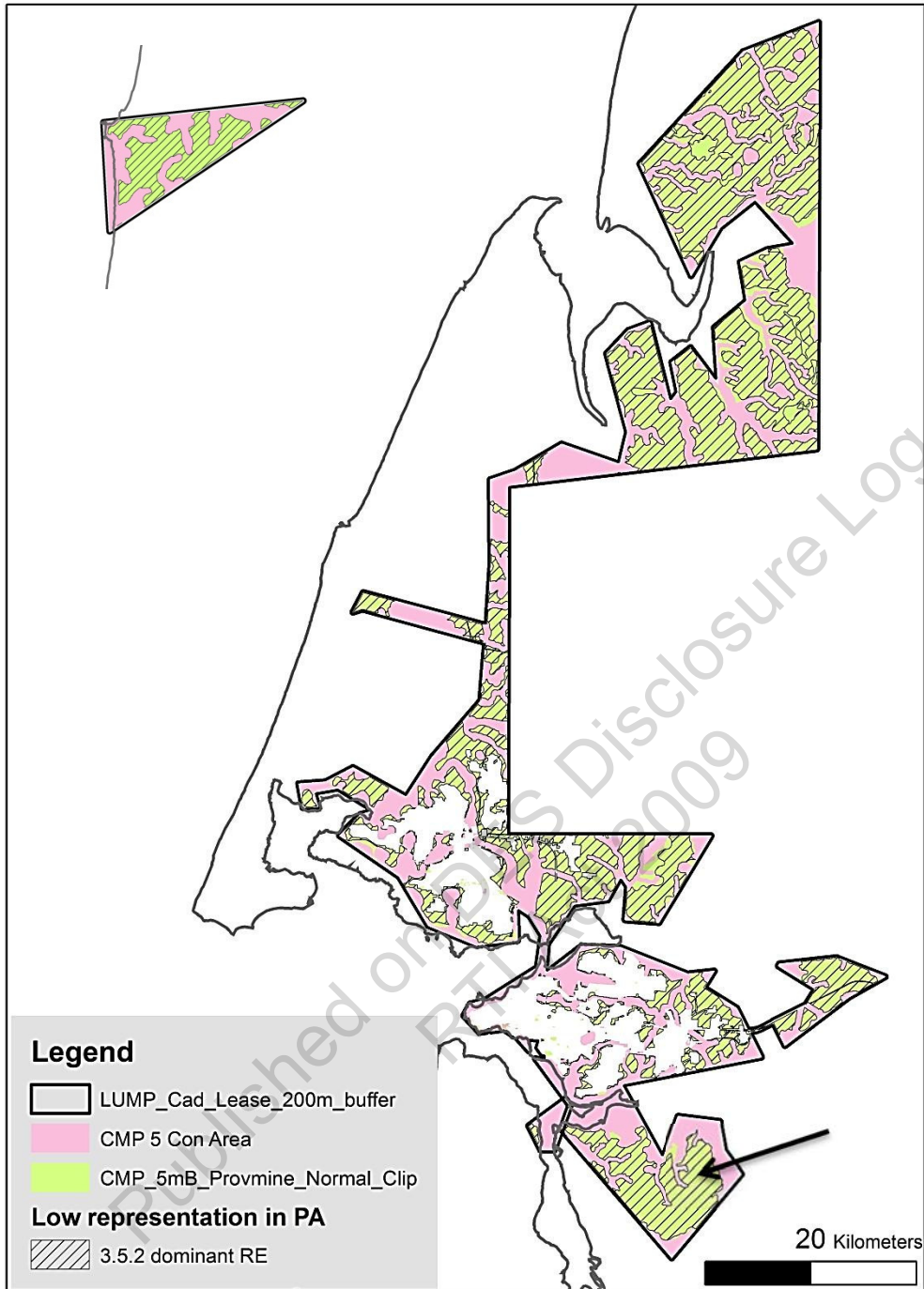


Figure 12 – Regional Ecosystem 3.5.2 (low representation in protected areas) that occur in proposed mining areas

The Cape York Peninsula BPA (Environment and Heritage Protection 2012) identified two areas of Regional Ecosystem 3.5.2 in the Weipa environs as representing examples of the maximum structural development of *Eucalyptus tetradonta* in Australia with trees 32-34 metres in height. These areas were considered to be of state significance and are mapped in Figure 13.

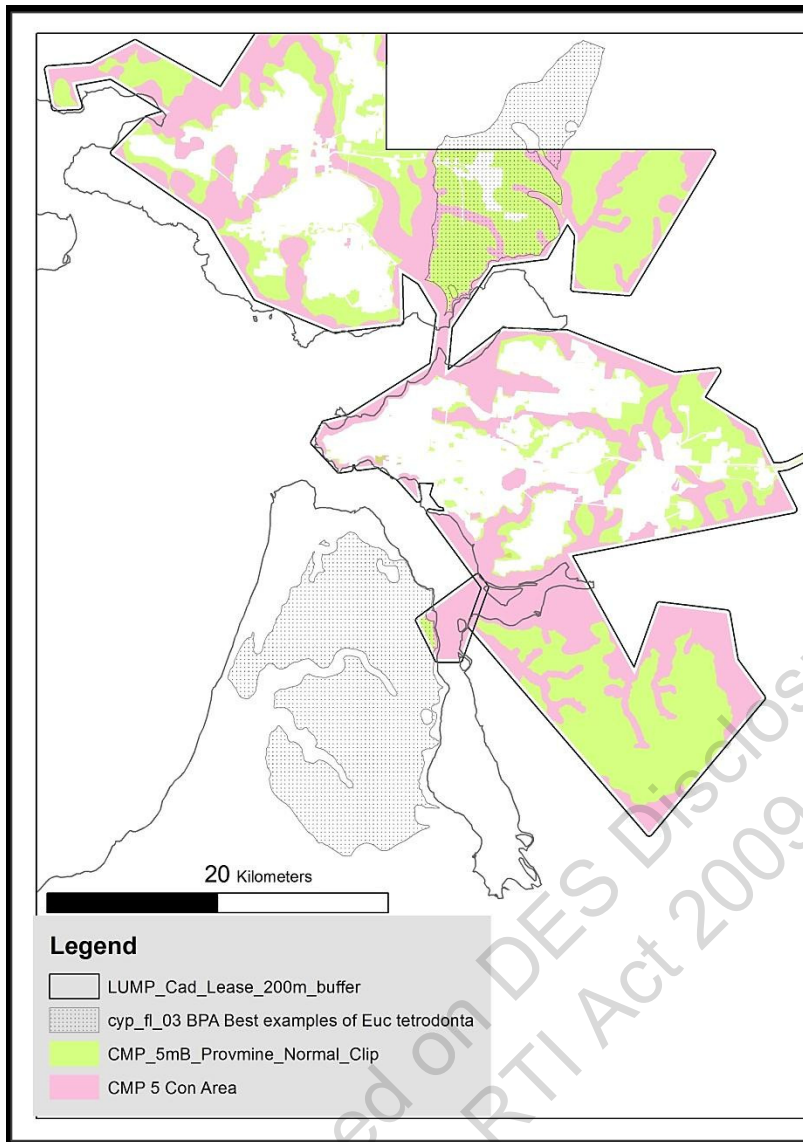


Figure 13 – Best examples of Regional Ecosystem 3.5.2 from Cape York Peninsula BPA (Environment and Heritage Protection 2012)

Conclusion: The clearing and fragmentation of Regional Ecosystem 3.5.2 is one of the major environmental impacts of this project. Current indications suggest that this community will not be rehabilitated. Therefore the securing of ecologically effective examples of this community is a priority for this LUMP. Best examples of this forest type have identified by the Cape York Peninsula BPA, one of which falls within the Andoom area.

Actions required: Identify and secure ecologically sustainable examples of RE 3.5.2 which represents the maximum structural development of *Eucalyptus tetrodonta* in Australia. This has been previously suggested by Cameron & Cogger (1992) and Gould (2004).

Restricted occurrence (i.e. to a single subregion entirely/ or with rare occurrences outside)

There are two REs that are mostly restricted to subregion 7 (Weipa plateau), namely: 3.9.4a (*Eucalyptus leptophleba* +/- *Corymbia papuana* open woodland on rolling plains), 3.3.39 (Semi-deciduous microphyll vine forest +/- *Melaleuca* spp. Associated with sinkholes). These REs together constitute 117 ha (0.1% of the study area) at the margins of the study area. They are mapped below.

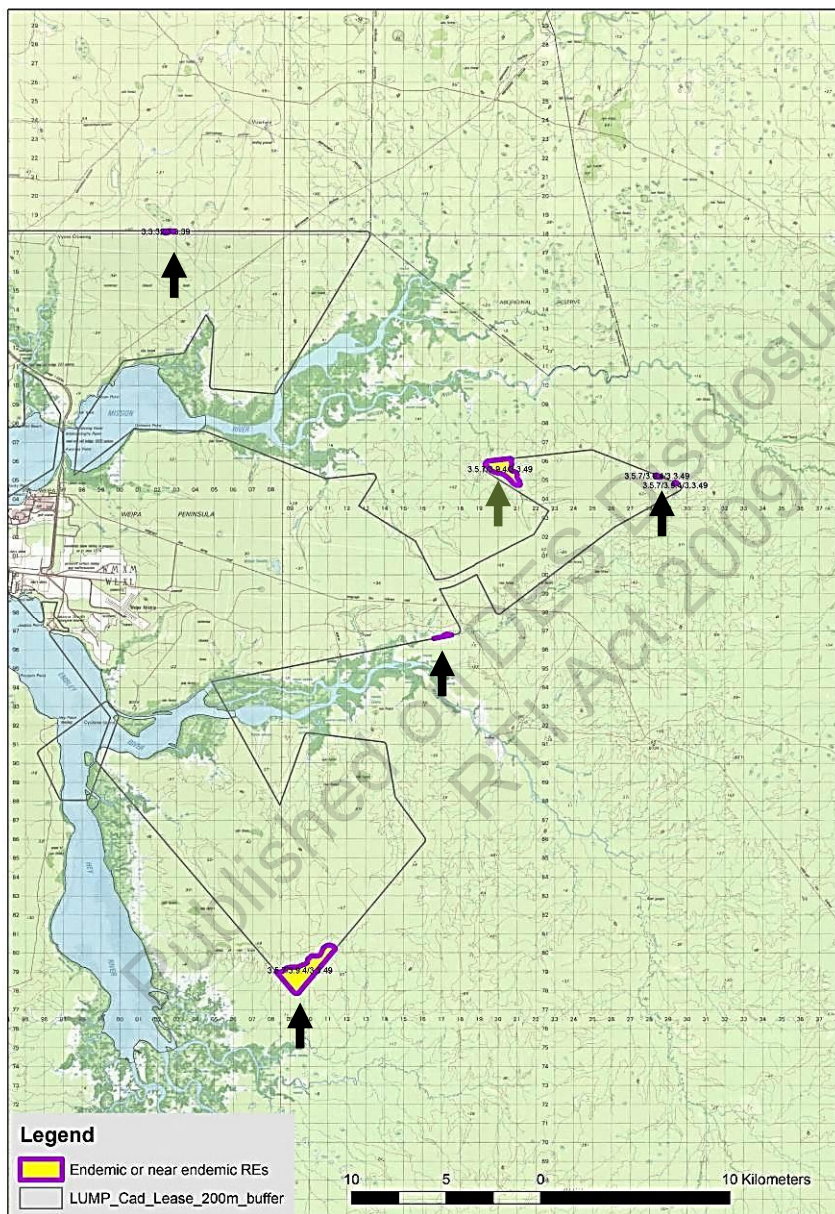


Figure 14 – Regional ecosystems of restricted occurrence (↑ indicates overlap with CMP 5mB)

Conclusion: Regional ecosystems of restricted occurrence occur within the lease area. Nearly all occur with CMP 5 Con Areas. Only 2 ha occur within CMP 5mB areas.

Actions required: Exclude 2 ha of restricted occurrence REs from proposed mining areas.

4.8 Traditional environment areas

It seems likely that a range of traditional environment areas may be identified from consultation with relevant Traditional Owners.

Additionally, the Weipa shell mounds (identified in the Register of the National Estate - Indigenous registered place ID 4/06/270/0005) in Section 4.6 above. The Weipa shell mounds have also been identified by the Australian Heritage Commission (1994) and are considered to be cultural deposits (Bailey *et al.* 1994, Morrison 2003) and described at <http://www.environment.gov.au/cgi-bin/ahdb/search.pl>.

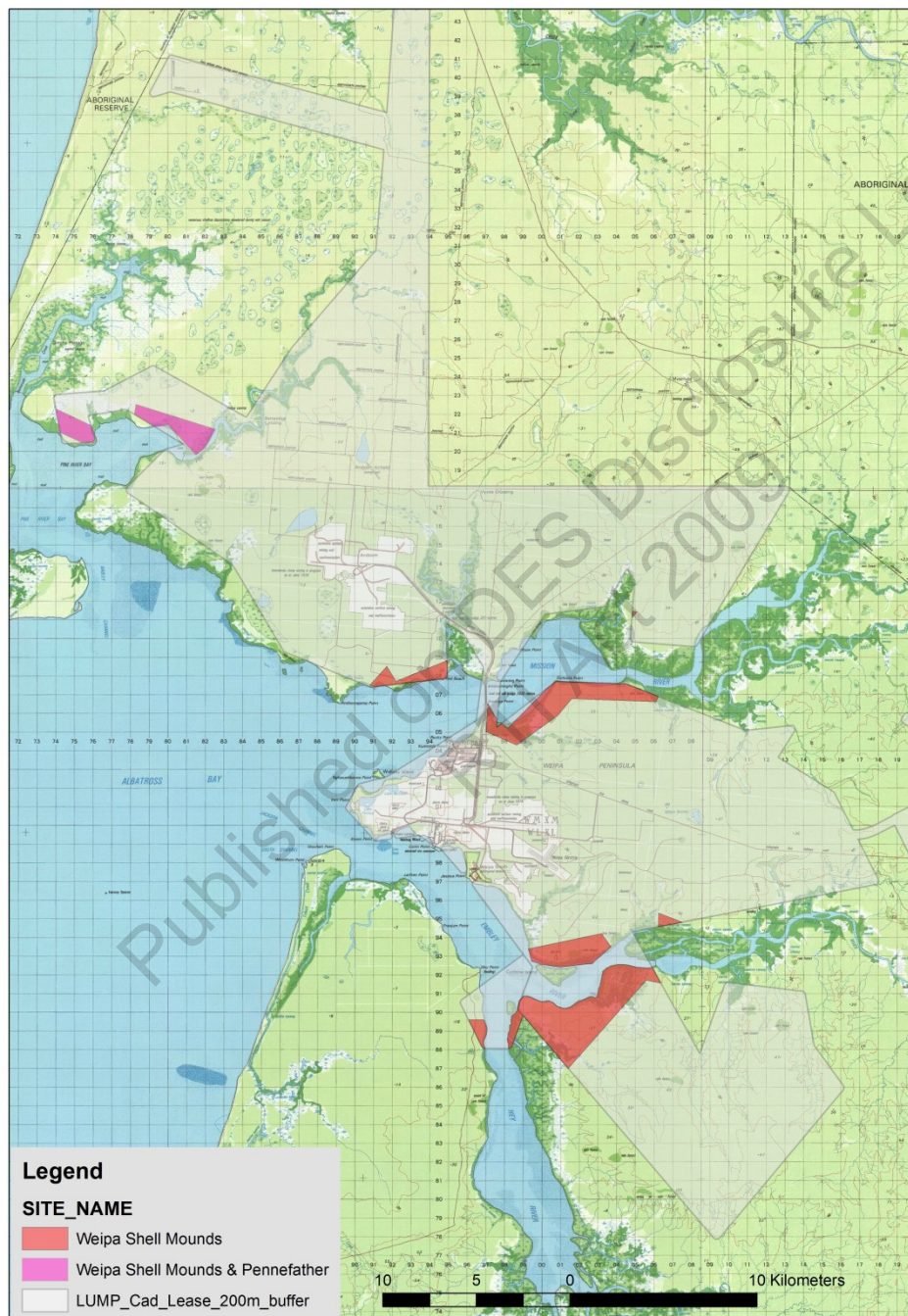


Figure 15 – Weipa shell mounds

Conclusion: 1,425 ha of the Weipa Shell Mounds Area occur within proposed mining areas.

Actions required: Undertake buffering to remove Weipa shell mounds from CMP 5mB.

4.9 Unique Landscape Features

This category of geological and landform values has been determined from the Australian Heritage Commission (1994), Burne & Graham (1995), Rienks *et al.* (1984), and Hitchcock *et al.* (2013). These reports identified the following sites of geological and landform conservation on Cape York Peninsula:

Jardine River National Park and swamps (Australian Heritage Commission 1994) which are described as nationally significant based on their wetlands and catchment and which constitute 3,757 ha within the study area and 1,912 ha of this overlaps with areas proposed for mining.

Pennefather – Duyfken sinkholes (Australian Heritage Commission 1994) which are described as nationally significant based on its high density of sinkholes in the Aurukun land surface. There are 10,821 ha within the study area and 3,757 ha of this overlaps areas proposed for mining.

Macdonald River to Skardon River (Australian Heritage Commission 1994) which is described as of regionally significant based on its representation of geomorphological features including sink holes, marine plains, beach ridges and swales, tidal flats, and laterite and sandstone scarps. Its occurrence within the study area is restricted to 435 ha of which 192 ha overlaps with areas proposed for mining.

Bauxite cliffs at Weipa and Andoom (Australian Heritage Commission 1994) which are described as nationally significant. These consist of small cuttings which demonstrate the bauxite regolith profile and together constitute 3 ha. The extent and condition of these examples is unknown. They occur in cleared areas, CMP 5 Con Areas or CMP 2a 2b areas.

Bauxite landscape (Hitchcock *et al.* 2013) which is described as ‘internationally significant based on its representation of the world’s largest bauxite deposit and its unique hydro-ecological processes that support a variety of unique biological expressions’. The dramatic red cliffs of the coastline near Weipa and Aurukun were first noted by the Dutch in 1756 (Smart 1977) and have been noticed for hundreds of years, but only in the 1950s were they recognised as exposures of bauxite (Willmott 2009). The bauxite, and the ferricrete immediately below, result from weathering in a seasonally humid environment with a fluctuating water table that deposits aluminium and iron oxides in the surface layers.

This layering, or laterite profile, can be up to 20 m deep, and the bauxite layer up to 12 m thick (Willmott 2009). The bauxite is noted for being composed of small rounded pebbles or ‘pisoliths’. The profile may have started to develop as long as 100 million years ago, and some transport of pisoliths by slope wash may have occurred at times (Taylor & Eggleton 2008, Willmott 2009).

The Weipa – Aurukun bauxite deposits are the largest in the world, stretching from Vrilya Point to the Holroyd River, a distance of 350 kilometres, and covering 11,000 square kilometres (Evans 1975, McConachie *et al.* 1997). They contain 22% of the world’s bauxite resources. These areas occur mostly on low plateaus which are eroded around their margins on small scarps such as around the Weipa Plateau and the Embley Range to the east (Willmott 2009).

There are 95,433 ha of existing bauxite regolith mapped within the study area (based on bauxite_geology (T&Qa) - 117,904.2 ha less LUMP_lease_cleared areas - 22,471 ha). 66,421 ha of this formation occur within proposed mining areas. Retention of a representative example of this potentially internationally significant regolith remains a significant challenge in this bioregion.

Conclusion: Three Unique landscape features (Jardine River National Park and swamps, Pennefather – Duyfken sinkholes, Macdonald River to Skardon River) overlap 5,861 ha of areas proposed for mining. The bauxite landscape identified by Hitchcock *et al.* (2013) overlaps 66,421 ha of areas proposed for mining.

Actions required: • Investigate and propose areas to protect examples of unique landscape features (Jardine River National Park and swamps, Pennefather – Duyfken sinkholes, Macdonald River to Skardon River).
Investigate and propose areas to provide a representative example of in-situ bauxite regolith.

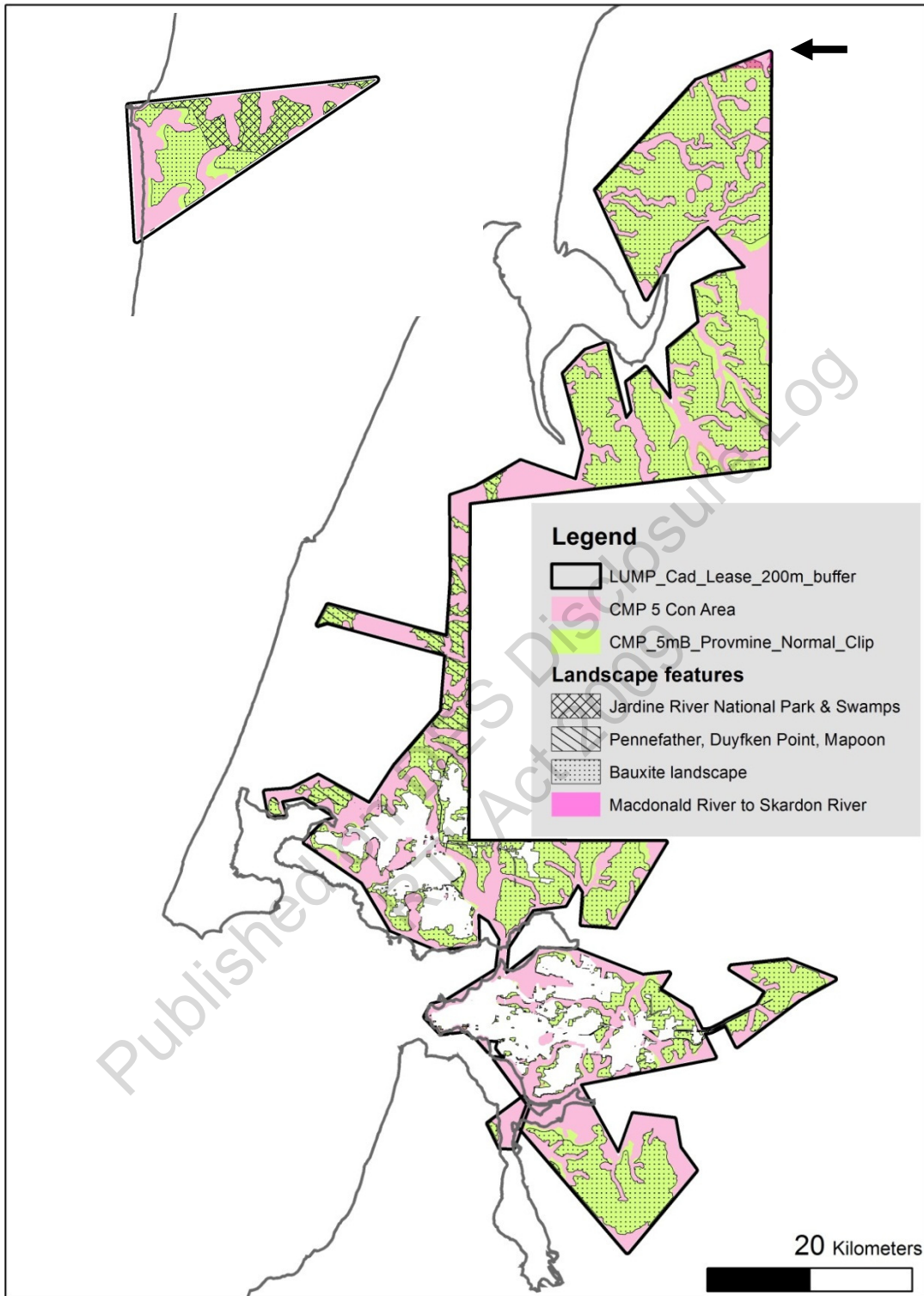


Figure 16 – Unique landscape features that occur in proposed mining areas (← indicates Macdonald River to Skardon River feature).

4.10 Terrestrial Refugia/ Biodiversity Hotspots

Terrestrial refugia are areas that provide shelter in a seasonal or evolutionary timescale. In the seasonal category are riparian/ riverine/ wetland communities that provide a seasonal refuge during the dry season and in some cases a refuge during the wet season (high levees). In the latter are areas which retain climatic/ ecological conditions that have been lost across the landscape; on Cape York Peninsula these consist of rainforest areas. In their work on refugia in arid and semi-arid Australia, Morton *et al.* (1995) identified nine categories of refugia, namely: **wetlands, ecological refuges, refuges from land clearing**, islands, mound springs, caves, gorges, mountain ranges, and refuges from exotic animals. Those of particular relevance to the current study area are indicated in **bold**.

Biodiversity hotspots are areas that either retain a higher than normal concentration of species or individuals, or are those areas that are habitat for species that are otherwise infrequent in the landscape. Many of these will be coincident with refuges.

The key refuges/hotspots across the study area are wetlands, rainforest areas and springs which are further discussed below.

Wetlands

Wetlands have been previously discussed and mapped above in Section 6.10. Of particular significance as refugia and biodiversity hotspots are riverine and palustrine wetlands/ waterbodies as these provide a source of freshwater and key habitat resources into the dry season. They are refugia to both terrestrial and aquatic biodiversity. It should be noted that some wetlands have not been mapped due to scale issues associated with Regional Ecosystem mapping at 1:100,000 scale.

Table G - Wetland REs collated from Appendix E (Version 7)

| Wetland type | Regional Ecosystems | Area (%) |
|--|---|-------------|
| Palustrine wetland (e.g. vegetated swamp). | 3.2.3, 3.3.12, 3.3.14, 3.3.32, 3.3.39, 3.3.63, 3.3.64 | 3.6% |
| Riverine wetland or fringing riverine wetland. | 3.3.5, 3.3.9, 3.3.10, | 1.4% |
| | Total | 5.0% |

For wetlands see Conclusions and Actions in Section 4.7 Sensitive Vegetation above.

Rainforests

Rainforests are important refuges as they provide:

- An important additional range of habitats in a savanna landscape,
- a seasonal range of resources for residents and species from adjacent habitats, and
- an evolutionary/genetic sink from which woodland and rainforest species radiate.

On Cape York Peninsula they also facilitate the movement of flora and fauna between the large rainforest blocks on the east coast and outliers on the west coast. Rainforest REs are identified in the Table H. Together these constitute 698 ha across the study area of which approximately 131 ha occur within proposed mining areas (see Figure 17). However, a cursory inspection of satellite imagery suggests that some areas of rainforest remain unmapped (e.g. RE 3.3.5, 3.5.4 at 12.762°S, 142.021°E; RE 3.5.4 at 12.489° S, 141.754° E); the latter example has been recognised by Gunness Landunit (3c) in the vicinity of Weipa.

Table H - Rainforest REs

| RE | Area (ha) | Description & Special values/ comments |
|---------|---------------|--|
| 3.2.1a | 0.81 | Evergreen notophyll vine forest on coastal dunes and beach ridges. High numbers of endemic plant species. The vulnerable species <i>Gardenia psidioides</i> and <i>Myrmecodia beccarii</i> and near threatened species <i>Archidendron hirsutum</i> , <i>Cryptocarya claudiana</i> and <i>Syzygium buettnerianum</i> occur in this ecosystem. |
| 3.2.2a | 23.05 | Semi-deciduous vine thicket on coastal dunes and beach ridges. High diversity of vascular plants, many with restricted distributions. This vegetation community supports the vulnerable species <i>Dendrobium bigibbum</i> (Cooktown Orchid) and <i>Psydrax reticulata</i> . |
| 3.2.13 | 14.58 | Evergreen notophyll vine forest on beach ridges on the east coast |
| 3.3.5a | 130.66 | Evergreen notophyll vine forest. Occurs on alluvia on major watercourses. High numbers of endemic plants. The vulnerable species <i>Gardenia psidioides</i> , & near threatened species <i>Acacia fleckeri</i> , <i>Archidendron hirsutum</i> , <i>Chrysophyllum roxburghii</i> , <i>Croton brachypus</i> & <i>Litsea macrophylla</i> occur. Important wildlife corridor for closed-forest species |
| 3.3.39 | 0.86 | Semi-deciduous microphyll vine forest +/- <i>Melaleuca</i> spp. Associated with sinkholes |
| 3.5.4 | 518.22 | Semi-deciduous notophyll vine forest. Occurs as small patches on northern plateaus. The near threatened species <i>Acacia albizioides</i> , <i>A. fleckeri</i> and <i>Margaritaria indica</i> occur in this ecosystem.. Great variability in species composition between patches |
| 3.10.1d | 10.24 | Evergreen mesophyll/notophyll vine forest. Restricted to sandstone gullies. Bauxite plateau edges in the Weipa area Springs associated with this ecosystem are significant for local fauna and near threatened flora species Often receive continuous moisture from permanent springs |
| | 698.42 | Total |

Conclusion: There are at least 698 ha of rainforest across the lease area of which approximately 131 ha occur within proposed mining areas. There also appears to be small areas which remain unmapped in the Embley River area.

Actions required: Remove areas of rainforest from proposed mining areas (CMP 5mB) and ensure adequate buffers. Use satellite imagery/ aerial photos and ground-truthing to identify unmapped rainforest and remove from CMP 5mB areas. Propose adequate buffers for rainforest areas

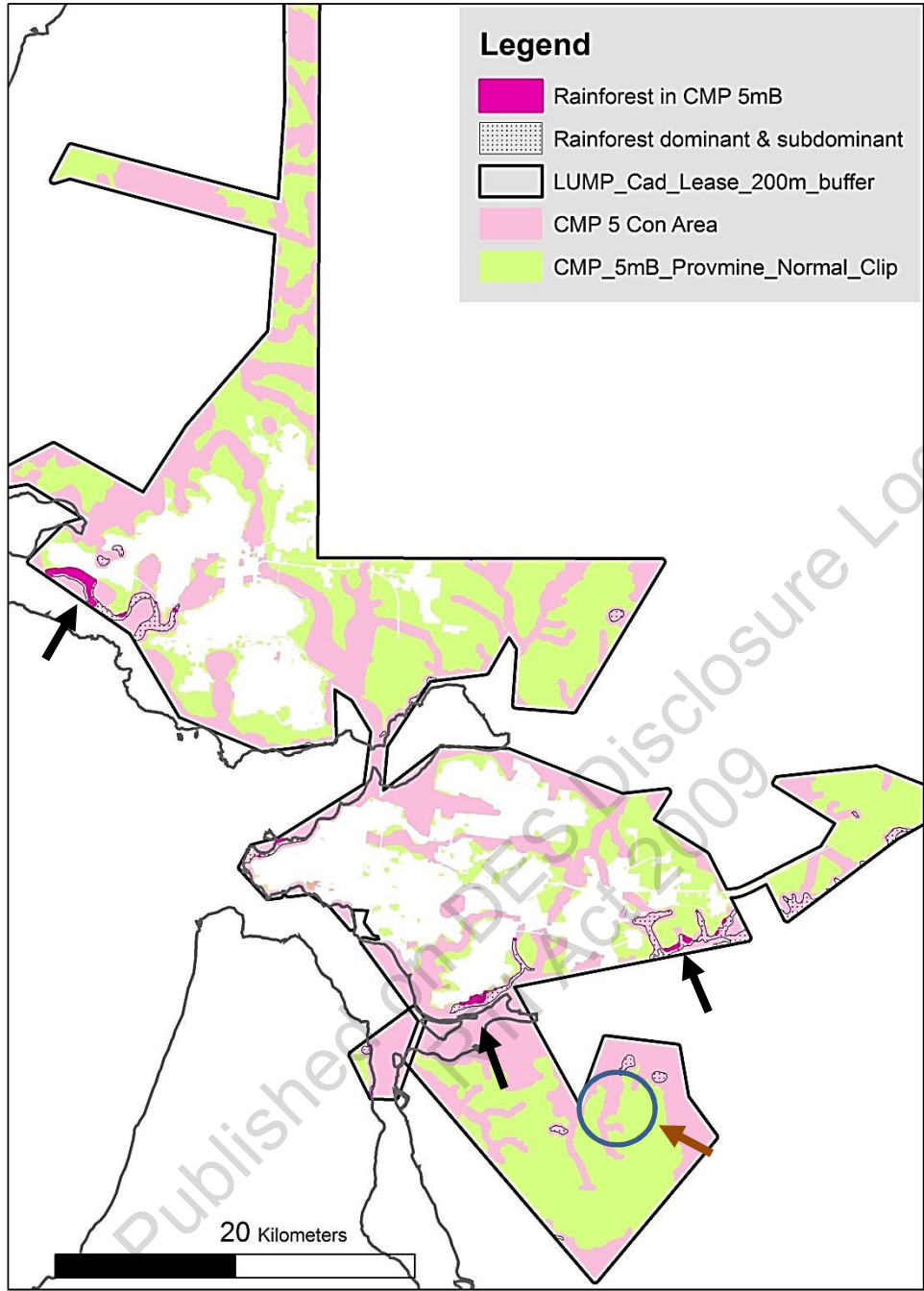


Figure 17 – Terrestrial refugia – Rainforests (← conflict areas with CMP 5mB areas, ← areas of significant unmapped rainforest).

Springs

The only spring well described and investigated within the lease would appear to be Unigan Swamp.

A range of other freshwater springs occur throughout the study area. Many are too small to be mapped at a Regional Ecosystem scale (1:100,000) except for RE 3.10.1d which is described in the Table H above.

Inspection of satellite images suggests that unmapped springs occur at the margins of the bauxite regolith and often underlay Regional Ecosystems 3.5.4, 3.3.64 or occur at the head of

drainages (e.g. RE 3.5.22). Springs are an important seasonal and evolutionary refuge in the landscape often supporting a complex of wetland and rainforest species.

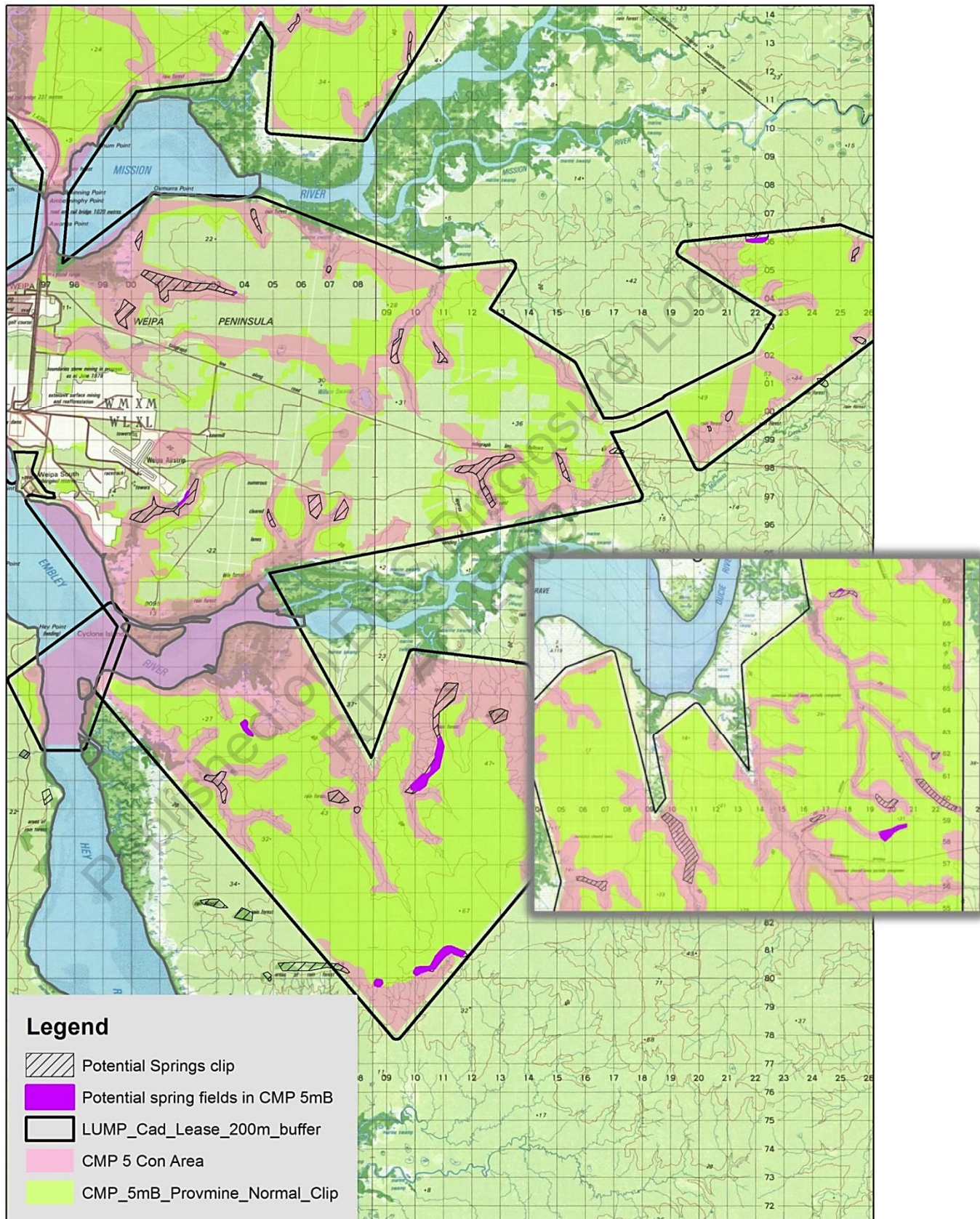


Figure 18 – Potential spring fields and overlap with proposed mining areas

The map above (Figure 18) identifies likely spring fields on the lease based on satellite imagery. Some of the springs which have been identified are off-lease but their function would appear to be tied to the on-lease bauxite regolith.

Within the lease, initial mapping has identified 27 potential spring fields with an accumulated area of 1,197 ha. An additional 25 spring fields, and 183 ha, lie within 2 kilometres of the lease boundary and may/may not be affected by regolith disturbance. There 126 ha of potential spring fields which occur within proposed mining areas (CMP 5mB).

Figure 18 also identifies potential spring fields likely to be directly affected by proposed mining.

There would appear to be no authoritative papers which discuss the impacts of regolith removal on nearby springs (quantity/quality/ annual flow characteristics). As part of the Wild River declaration process for the Wenlock River investigations were undertaken on environmental values and groundwater characteristics of spring fed wetlands on Bertiehaugh. As a consequence of this work, some of these areas were buffered by 500 metres from proposed mining areas.

The actual occurrence and environmental values of these potential spring fields needs to be confirmed from field investigations. Based on these findings, a range of buffers should be provided for key springs of up to 500 metres.

Conclusion: 27 potential spring fields with an accumulated area of 1,197 ha are known or predicted in the study area. There are 126 ha of potential spring fields which occur within proposed mining areas (CMP 5mB).

Actions required: Identify environmental values of potential spring fields using field investigations. Exclude areas of confirmed spring field from proposed mining areas (CMP 5mB) and ensure adequate buffers up to 200 metres. Ensure that key examples of spring fed vineforest remain protected in ecologically sustainable landscape positions. Undertake monitoring of key springs to track trajectory of water flow (quantity & quality) and biocondition over time.

4.11 Aquatic Refugia/ Biodiversity Hotspots

Pine River Bay Fish Habitat Area can be regarded as an aquatic biodiversity hotspot. Protection of this area is described above (**Section 4.1**). Terrestrial biodiversity hotspots have been considered above under refuges.

4.12 Habitat corridors

The importance of wildlife corridors is outlined in the *National Wildlife Corridors Plan* (Commonwealth of Australia 2012).

Connectivity across Cape York Peninsula is generally excellent due to the high ecological integrity of its aquatic and terrestrial ecosystems. However, it is likely that fragmentation and clearing will increase in the Weipa area leading to a decline in ecological connectivity.

The Cape York Peninsula BPA has identified a number of terrestrial and aquatic corridors within or close to the study area that are considered to be of state or regional significance as shown below (see Figure 19). The Wenlock River corridor is identified as being of state significance whilst Crystal Creek, Skardon River, Namaleta Creek, Ducie River, Dulhunty River, Pennefather River, Pine Creek, and Embley River are identified as regional significance.

These corridors identify areas that are riparian based. It is important that these are maintained and are of sufficient width to facilitate the movement of terrestrial biodiversity and so that edge effects do not significantly degrade the feature. These corridors need to be developed and protected from disturbance in conjunction with the retention of representative areas of Regional

Ecosystem 3.5.2, discussed above. It may be necessary to retain non-riparian corridors to protect ecological connectivity in non-riparian areas.

Conclusion: A number of terrestrial river-based corridors have been identified within or close to the study area that are considered to be of state or regional significance. There are 70 ha of these which overlap with proposed mining areas. It is important that corridors are of sufficient width to facilitate the movement of biodiversity and so that edge effects do not significantly degrade their effectiveness; they may be key habitat for some threatened species e.g. Red goshawk (Curtis *et al.* 2012). It may be necessary to retain non-riparian corridors to protect ecological connectivity in non-riparian areas.

Actions required: Exclude 71 ha of identified BPA corridors from CMP 5mB areas. Propose a network of corridors in conjunction with the retention of representative areas of Regional Ecosystem 3.5.2.

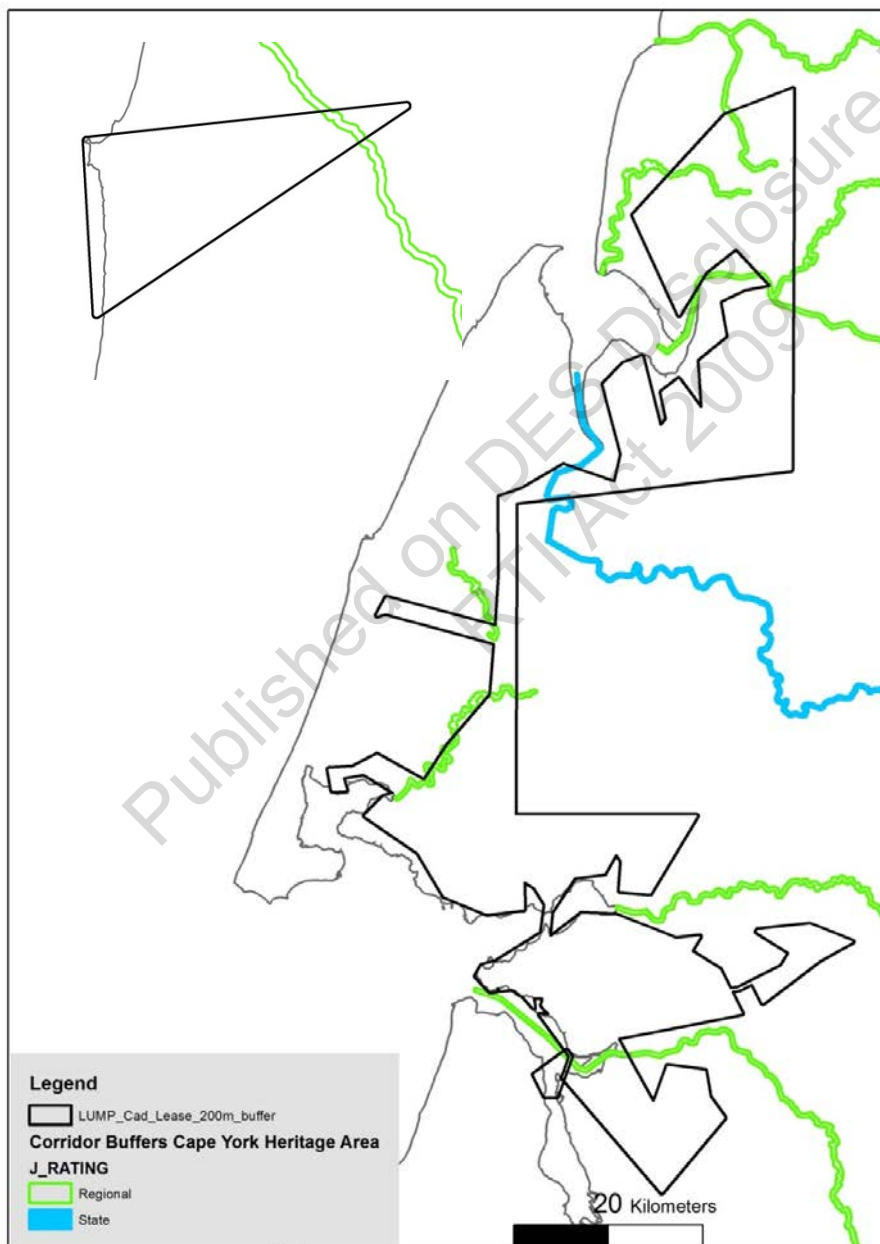


Figure 19 – Important riparian-based habitat corridors

4.13 Habitat Cores & Nodes

These are identified in **Section 4.10** above

4.14 Threatened Flora and Fauna

This section refers to flora and fauna listed as threatened by Commonwealth *EPBC Act* or State *Nature Conservation Act*.

Table I provides a summary of threatened species of the lease area from Appendix F which collates data from an MNES database search (Appendix B), a Wildnet search (25 km buffer to lease), and Limpus (2008a, b & 2009 – see Appendix D).

A total of 78 threatened species were identified with the largest number being plants. The table below summarises these data.

Table I –Threatened species

| Group | Conservation status | | | | Total |
|-----------------|-----------------------|------------|------------|-----------------|-----------|
| | Critically endangered | Endangered | Vulnerable | Near Threatened | |
| Plants | | 3 | 10 | 13 | 26 |
| Fish | 1 | | 3 | | 4 |
| Reptiles | | 2 | 6 | 4 | 12 |
| Birds | | 4 | 2 | 11 | 16 |
| Mammals | 1 | 4 | 8 | 6 | 19 |
| Total | 2 | 13 | 29 | 34 | 78 |

Information on probability of occurrence was collated (see Appendix F) based on information from Wildnet, literature and personal knowledge (fauna- M. Trenergy EHP pers. comm.; flora – B. Wannan EHP pers. comm.).

An analysis of these data was undertaken based on the conservation status and the probability of occurrence (see Tables J, K & L and Figure 20).

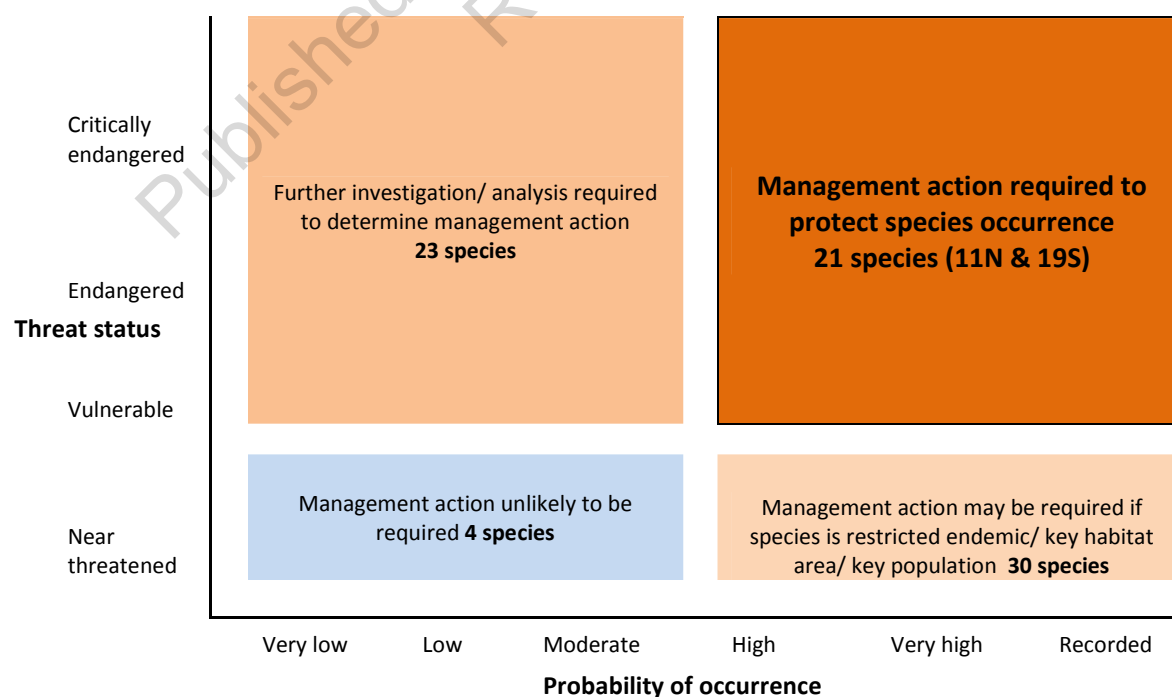


Figure 20 - Risk matrix for threatened species based on *level of threat and occurrence*

These data show that the largest number of highly threatened species with a high probability of occurrence are in the southern study area (19 spp.) compared with the northern section (11 species).

Probability of Occurrence

The species discussed above have been assigned to 13 habitat types as set out below using Broad Vegetation Groups³ based on REs, and Queensland Wetland Data.

Table J – Habitat types within the study area

| Threatened species habitat | Derivation of Habitat Information | Area (ha) ¹ |
|-----------------------------------|--|------------------------|
| Eucalypt woodland | BVG 9e, 13a, 14a, 14b, 18c, in Regional Ecosystem mapping | 104615.2 |
| Melaleuca woodland | BVG 21a, 22a, 22b, 22c in Regional Ecosystem mapping | 7961.1 |
| Freshwater lacustrine/ palustrine | lacustrine or palustrine waterbodies (Queensland Wetland Data) | 7373.4 |
| Mangrove | 35a in Regional Ecosystem mapping | 6632.2 |
| Estuarine | estuary in Regional Ecosystem Mapping | 4239.45 |
| Grassland | BVG 32a, 32b in Regional Ecosystem mapping | 1850.6 |
| Mudflat, saltmarsh | BVG 35b in Regional Ecosystem mapping | 1487.1 |
| Inshore marine | ocean in Regional Ecosystem mapping | 721.06 |
| Rainforest | BVGs 2c, 3b, 4b, & 7b in Regional Ecosystem mapping | 688.2 |
| Acacia/ Asteromyrtus woodland | BVG 28b, 28c in Regional Ecosystem mapping | 516.8 |
| Freshwater riverine | riverine waterbodies (Queensland Wetland Data) | 256.6 |
| Littoral woodland/ shrubland | BVG 28a, 29a in Regional Ecosystem mapping | 144.7 |
| Beaches sandspits | BVG 28d & 'sand' in coastal areas in Regional Ecosystem mapping. | 117.3 |
| Total habitat area | | 136,641 |

1: Area within buffered study area – includes dominant and subdominant components (note cleared and non-remnant areas are not included). Note there is a small area of overlap between Queensland Wetland Data and Regional Ecosystem mapping.

The largest area of habitat consists of *Eucalypt woodland* (77%) which includes over 92,293 ha of Regional Ecosystem 3.5.2. Only three other habitats (*Melaleuca woodland*, *Freshwater wetlands*, *Mangroves*) exceed 5,000 ha in area. The remaining nine habitats each constitute less than 1,000 ha and together comprise only 7% of the study area.

A) High threat - high probability species

Across both study areas there are 21 species that are considered high conservation status (Critically Endangered, Endangered, Vulnerable) with a high probability of occurrence (recorded, very high, high) in either northern or southern parts of the lease. These consist of 8 plants, 4 fish, 3 reptiles, 3 birds and 3 mammals. 19 species occur in the southern portion of the lease while 11 species occur in the northern part of the lease.

Nearly half (10 spp.) occur in *Rainforest* areas followed by *Estuarine* (7 spp.), *Inshore marine* (5 spp.), *Beaches* (5 spp.), *Freshwater lac/pal* (5 spp.), and *Eucalypt woodland* (5 spp.). 20 species occur across at least two habitats. Only one (*Dendrobium carronii*) is restricted to a single habitat (*Melaleuca woodland*). Two habitats (*Mudflats* & *Acacia/ Asteromyrtus woodland*) contain no species in this category.

³ <http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/bvg.html>.

Table K – Species with high conservation status and a high probability of occurrence

| Group | Species | Highest conservation status (NCA/EPBC Act) | Inshore marine | Estuarine | Mangrove | Mudflat, saltmarsh | Beaches sandspits | Freshwater riverine | Freshwater lac/pal | Grassland | Littoral woodland | Acacia woodland | Mel woodland | Euc Woodland | Rainforest | Probability of occurrence in northern lease area | Probability of occurrence in southern lease area | Area of habitat (ha) |
|----------|--|--|----------------|-----------|----------|--------------------|-------------------|---------------------|--------------------|-----------|-------------------|-----------------|--------------|--------------|------------|--|--|----------------------|
| Plants | <i>Hedyotis novoguineensis</i> | Endangered | | | | | | • | • | | | | | | • | Moderate | High | 8,318.20 |
| Fish | <i>Glyphis glyphis</i> (Speartooth shark) | Critically Endangered | | • | | | | • | | | | | | | | Low | Recorded | 4,496.05 |
| Birds | <i>Erythrotriorchis radiatus</i> (Red goshawk) | Endangered | | | | | | • | | • | | | • | • | | High | Recorded | 114,683.50 |
| Birds | <i>Sternula albifrons</i> (Little Tern) | Endangered | | | | | • | | • | | | | | | | High | Recorded | 7490.7 |
| Mammals | <i>Dasyurus hallucatus</i> (N. Quoll) | Endangered | | | | | | | | | | | | • | • | High | Recorded | 105,303.40 |
| Plants | <i>Calophyllum bicolor</i> | Vulnerable | | | | | | | | | | | | | • | Moderate | Recorded | 688.20 |
| Plants | <i>Dendrobium bigibbum</i> | Vulnerable | | | | | | | • | | | | | | • | High | Recorded | 8,061.60 |
| Plants | <i>Dendrobium carronii</i> | Vulnerable | | | | | | | | | | | • | | | High | Moderate | 7,961.10 |
| Plants | <i>Dendrobium johannis</i> | Vulnerable | | | | | | | | | • | | • | | • | High | High | 8,794.00 |
| Plants | <i>Solanum dunalianum</i> | Vulnerable | | | | | | | | | | | • | | • | Moderate | Recorded | 8,649.30 |
| Plants | <i>Sarcolobus vittatus</i> | Vulnerable | | | • | | | | | | | | | | • | Low | Recorded | 7,320.40 |
| Plants | <i>Spathoglottis plicata</i> | Vulnerable | | | | | | | • | | | | • | | • | Moderate | Recorded | 8,061.60 |
| Fish | <i>Pristis clavata</i> (Dwarf sawfish) | Vulnerable | • | • | | | | | | | | | | | | Low | Recorded | 4,960.51 |
| Fish | <i>Pristis microdon</i> (F/water sawfish) | Vulnerable | | • | | | | • | | | | | | | | Low | Recorded | 4,496.05 |
| Fish | <i>Pristis zijsron</i> (Green sawfish) | Vulnerable | • | • | | | | | | | | | | | | Low | Recorded | 4,960.51 |
| Reptiles | <i>Crocodylus porosus</i> | Vulnerable | • | • | • | | • | | | | | | | | | Very high | Recorded | 11,710.01 |
| Reptiles | <i>Lepidochelys olivacea</i> (Olive ridley turtle) | Vulnerable | • | • | | | • | | | | | | | | | Recorded | Recorded | 5,077.81 |
| Reptiles | <i>Natator depressus</i> (Flatback turtle) | Vulnerable | • | • | | | • | | | | | | | | | Recorded | Recorded | 5,077.81 |
| Birds | <i>Esacus magnirostris</i> (Beach Stone-curlew) | Vulnerable | | | | | • | | • | | • | | | | | Recorded | Recorded | 7,635.4 |
| Mammals | <i>Macroderma gigas</i> (Ghost Bat) | Vulnerable | | | | | | | | | | | | • | • | Moderate | High | 105,303.40 |
| Mammals | <i>Hipposideros cervinus</i> (Fawn Leaf-nosed Bat) | Vulnerable | | | | | | | | | | | | • | • | High | Moderate | 105,303.40 |
| | Total number of species per habitat type | | 5 | 6 | 2 | 0 | 4 | 4 | 5 | 1 | 2 | 0 | 5 | 4 | 10 | | | |

The habitats for the five **critically endangered/ endangered** species are *Estuarine* (1 sp.), *Beaches* (1 sp.), *Freshwater riverine* (2 spp.), *Freshwater lac/pal* (2 spp.), *Grassland* (1 sp.), *Eucalypt woodland* (2 spp.), *Melaleuca woodland* (1 sp.) and *Rainforest* (2 spp.). All five species occur in the southern part whilst only three species have a high probability of occurrence in the northern part. These areas are mapped below.

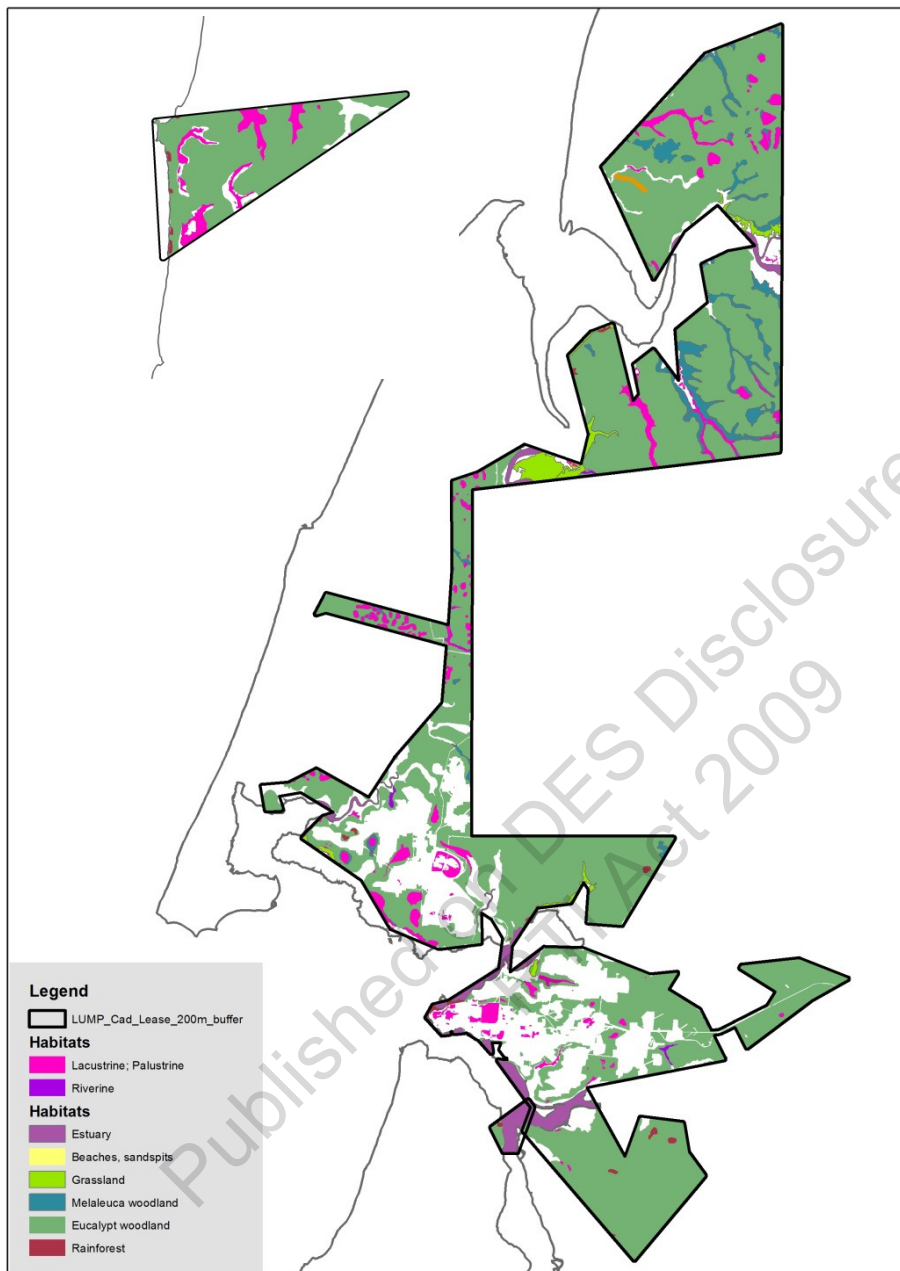


Figure 21 – Habitat for recorded/ high probability critically endangered/ endangered species

The habitats for the 16 **vulnerable** species are *Inshore marine* (5 spp.), *Estuarine* (6 sp.), *Mangrove* (2 spp.), *Beaches* (4 spp.), *Freshwater riverine* (1 sp.), *Freshwater lac/pal* (3 spp.), *Littoral woodland* (2 spp.), *Melaleuca woodland* (3 spp.), *Eucalypt woodland* (3 spp.) and *Rainforest* (8 spp.). 14 species occur/ have a high probability of occurrence in the southern part whilst 8 species occur/ have a high probability of occurrence in the northern part. These areas are mapped below. The Northern Quoll is the subject of further investigation by RTAW 2013 (Appendix G); this survey indicates an extant population on the lease in the area east of Scherger Airbase.

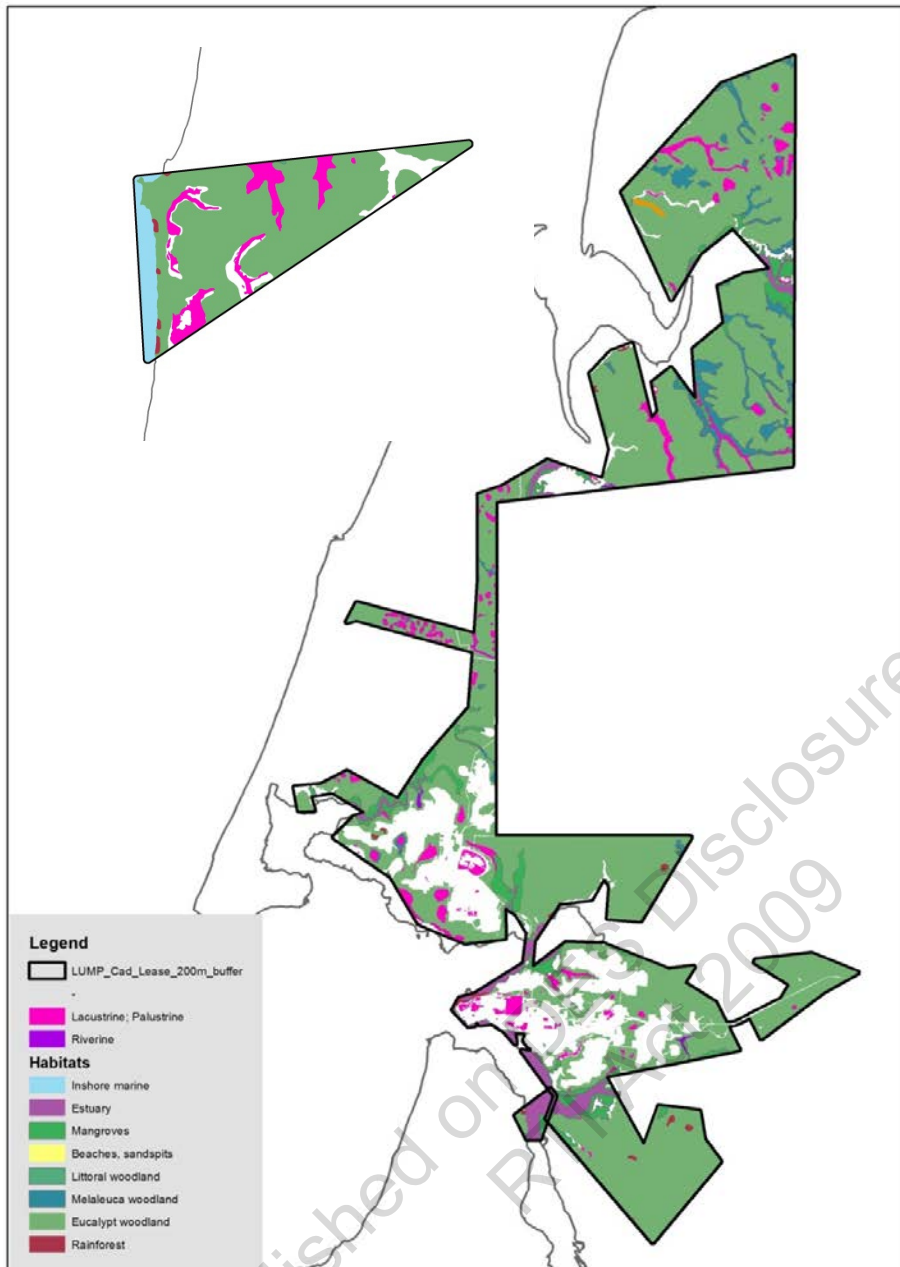


Figure 22 – Habitat for recorded/ high probability vulnerable species

The summary above suggests that:

- High threat/ high probability species occur across all habitats except for *mudflats/saltmarsh* and *Acacia woodland* communities.
- The key habitats for high threat/ high probability species are *rainforest* (10 spp.), *estuarine* areas (6 spp.) and *Melaleuca woodland* (5 spp.) communities.

There are four endangered/vulnerable species likely to be impacted by proposed mining of *Eucalyptus tetradonta* open woodland (Red goshawk, Northern Quoll, Ghost bat, Fawn leaf-nosed bat).

B) High threat – low probability species

There are 23 species in this category (see table below) comprising 10 critically endangered/ endangered species and 13 vulnerable species. There are 5 plants, 5 reptiles, 3 birds, 10 mammals. Nearly half (11 spp.) occur in *Eucalypt woodland* followed by *Inshore marine* (7 spp.), and *Rainforest* (7 spp.). 13 species occur across at least two habitats. 8 species are restricted to a single habitat (3 spp. *Inshore marine*, 3 spp. *Rainforest*, 2 spp. *Eucalypt woodland*). One habitat (*Freshwater lac/pal*) contains no species in this category.

C) Low threat – high probability species

There are 30 species in this category (Near threatened species that are recorded or of very high/high probability) comprising 10 plants, 3 reptiles, 11 birds, 6 mammals. Nearly half (12 spp.) occur in *Rainforest* followed by *Eucalypt woodland* (9 spp.) and *Freshwater lac/pal* (8 spp.). 17 species occur across at least two habitats. 13 species are restricted to a single habitat (8 spp. *Rainforest*, 4 spp. *Eucalypt woodland*, 1 sp. *Freshwater lac/pal*). Only one habitat (*Acacia/Asteromyrtus woodland*) contains no species in this category.

D) Low threat – low probability species

There are only 4 species in this category (Near threatened species that are of very low-moderate probability) comprising 3 plants, 1 reptiles. Two species are wetland species (occur in *Freshwater lac/pal* and *Acacia/Asteromyrtus woodland/ Melaleuca woodland*). Two species are restricted to *Eucalypt woodland*. Nine habitats contain no species in this category.

Conclusion: There are a total of 78 threatened species known or likely to occur in the lease area (26 plants & 52 animals). 52 species occur in indirectly affected in habitats such as rainforest, wetlands or marine environments.

Up to 26 species may be directly affected by the proposed mining of eucalypt woodland on bauxite including:

- 4 species considered high conservation status (Critically Endangered, Endangered, Vulnerable) with a high probability of occurrence (recorded, very high, high) - Red goshawk, Northern Quoll, Ghost Bat and Fawn Leaf-nosed Bat. One of these (Quoll – see Appendix G) is the subject of current survey work to determine the extent of habitat⁴
- 11 species considered high conservation status (Critically Endangered, Endangered, Vulnerable) but with a low probability of occurrence (moderate, low, very low)
- 9 species considered low conservation status (near threatened) and high probability of occurrence (recorded, very high, high)
- 2 species considered low conservation status (near threatened) and low probability of occurrence (moderate, low, very low)

Actions required: Determine extent of key habitat for 26 threatened species likely to be directly impacted by mining activities.

Investigate opportunities for protection of key habitat areas for threatened species. Identify representative areas to provide ecologically sustainable examples of eucalypt woodland habitat for potentially 26 threatened species. These may include:

- Protection of up to one kilometre buffer of vegetation along freshwater riparian corridors for Red goshawk (Curtis *et al.* 2012, Department of Environment and Resource Management 2012)
- Protection of escarpment edge laterite rock-piles and wetlands for Quolls (Curtis *et al.* 2012, Hill & Ward 2010)

For habitat not directly affected – ensure that peripheral activities do not impact on habitat quality and ecological processes.

Develop program to monitor threatened species across the lease especially those most strongly affected by eucalypt woodland removal. Examples of monitoring activities are provided in recovery plans (e.g. Department of Environment and Resource Management 2012, Hill & Ward 2010).

Undertake recovery activities for threatened species such as: Quolls - protection of key secure populations through protection of habitat (Hill & Ward 2010).

⁴ Courier Mail 2013 – Rio Tinto staff discover endangered northern Quolls at Cape York Peninsula bauxite mine. <http://www.couriermail.com.au/news/queensland/rio-tinto-staff-discover-endangered-northern-quolls-at-cape-york-bauxite-mine/story-fnihsrf2-1226676677077>

Table L – Species with high conservation status and a low-moderate probability of occurrence

| Group | Species | Highest status (NCA/ EPBC Act) | Inshore marine | Estuarine | Mangrove | Mudflat, saltmarsh | Beaches sandspits | Freshwater riverine | Grassland | Littoral woodland | Melaleuca woodland | Euc Woodland | Rainforest | Probability of occurrence in northern lease area | Probability of occurrence in southern lease area | Area of habitat |
|---|--|--------------------------------|----------------|-----------|----------|--------------------|-------------------|---------------------|-----------|-------------------|--------------------|--------------|------------|--|--|-----------------|
| Plants | <i>Cajanus mareebensis</i> | Endangered | | | | | | | | | | • | | Low | Low | 104,615 |
| Plants | <i>Streblus pendulinus</i> | Endangered | | | | | | | | | | | • | Low | Low | 688 |
| Plants | <i>Arenga australasica</i> | Vulnerable | | | | | | | | | | | • | Moderate | Low | 688 |
| Plants | <i>Combretum trifoliatum</i> | Vulnerable | | | | | | | | | | | • | Low | Moderate | 688 |
| Plants | <i>Eleocharis retroflexa</i> | Vulnerable | | | | | | • | | | | | • | Moderate | Low | 944 |
| Reptiles | <i>Caretta caretta</i> (Loggerhead turtle) | Endangered | • | • | | | • | | | | | | | Moderate | Moderate | 5078 |
| Reptiles | <i>Dermochelys coriacea</i> (Leatherback turtle) | Endangered | • | • | | | • | | | | | | | Moderate | Moderate | 5078 |
| Reptiles | <i>Chelonia mydas</i> (Green turtle) | Vulnerable | • | • | | | • | | | | | | | Low | Low | 5078 |
| Reptiles | <i>Egernia rugosa</i> (Yakka skink) | Vulnerable | | | | | | | | | | • | | Moderate | Moderate | 104,615 |
| Reptiles | <i>Eretmochelys imbricata</i> (Hawksbill turtle) | Vulnerable | • | • | | | • | | | | | | | Moderate | Moderate | 5078 |
| Birds | <i>Erythrura gouldiae</i> (Gouldian Finch) | Endangered | | | | | | | • | | | | | Low | Low | 106,466 |
| Birds | <i>Psephotus chrysopterygius</i> (Antbed Parrot) | Endangered | | | | | | | • | | | | | Low | Low | 106,466 |
| Birds | <i>Tyto novaehollandiae</i> (Masked owl) | Vulnerable | | | | | | | • | • | • | | | Low | Low | 114,572 |
| Mammals | <i>Saccolaimus saccolaimus nudicluniatu</i> s (Bare-rumped Sheath-tail Bat) | Critically Endangered | | | | | | | | | | • | | Low | Low | 104,615 |
| Mammals | <i>Balaenoptera musculus</i> (Blue Whale) | Endangered | • | | | | | | | | | | | Very low | Very low | 721 |
| Mammals | <i>Hipposideros semoni</i> (Semon's Leaf-nosed Bat) | Endangered | | | | | | | | | | • | • | Moderate | Moderate | 105,303 |
| Mammals | <i>Rhinolophus philippinensis</i> (large form) Greater Large-eared Horseshoe Bat | Endangered | | | | | | | | | | • | • | Low | Low | 105,303 |
| Mammals | <i>Conilurus penicillatus</i> (Brush-tailed Rabbit-rat) | Vulnerable | | | | | | | | | | • | | Low | Low | 104,615 |
| Mammals | <i>Megaptera novaeangliae</i> (Humpback whale) | Vulnerable | • | | | | | | | | | | | Very low | Very low | 721 |
| Mammals | <i>Notomys aquilo</i> (Northern Hopping mouse) | Vulnerable | | | | | | | • | • | | | | Very low | Very low | 106,610 |
| Mammals | <i>Pteropus conspicillatus</i> (Spectacled Flying-fox) | Vulnerable | | | | | | | | | | • | • | Moderate | Low | 105,303 |
| Mammals | <i>Rhincodon typus</i> (Whale shark) | Vulnerable | • | | | | | | | | | | | Low | Low | 721 |
| Mammals | <i>Xeromys myoides</i> (False Water Rat) | Vulnerable | | | • | • | | | | | | | | Very low | Very low | 8119 |
| Total number of species per habitat type | | | 7 | 4 | 1 | 1 | 4 | 1 | 4 | 2 | 1 | 11 | 7 | | | |

4.15 Migratory species

The MNES database searches list over 35 migratory species. Most species are shorebirds or waders that utilise feeding habitats outside the proposed mining areas. However, there are two species of Frigatebird which have a significant roost on the lease which occurs in mining areas. Up to 2,000 birds use this only known roost in Australia (Mustoe 2008) which occurs within *Eucalyptus tetrodonta* woodland.

The main roost as indicated by Mustoe (2008) occurs near Humbug Wharf in an area proposed for mining (CMP 5mB). The RTAW designated Frigatebird Roost (CMP 5pC) occurs north-east of the airport in an area which is 74% cleared. Mustoe also suggests that the airport roost (Winter & Atherton 1985) has been cleared.

Conclusion: A significant Frigatebird roost occurs within the lease area which overlaps with areas proposed for mining near Humbug Wharf.

Actions required: Ensure that all Frigatebird roosts are protected by inclusion in CMP Con areas. Ensure that peripheral activities do not impact adversely on roost areas.

4.16 Other significant flora and fauna

The Cape York Peninsula BPA (2012) identified over 200 species that are endemic to Cape York Peninsula but which attract no conservation status. Of these species, there are four plants that are narrow regional endemics limited to the Weipa area:

- *Calochilus* sp. (Weipa B.R.Jahnke 5) which is known from a single record near Eurum Creek in eucalypt woodland
- *Portulaca* sp. (Weipa Mission R.L.Specht+ W233) which is known from a single record near Kerr Pt (sclerophyll habitat).
- *Typhonium weipanum* which is known from a single record near Kerr Pt on *Eucalyptus tetrodonta* woodland.
- *Casearia* sp. (Possum Scrub G.Sankowsky 1057) which is known from a record near Andoom in vine forest and a record from Possum Scrub on the Wenlock River.

The *Casearia* is a vine forest species whilst the remainder (*Calochilus*, *Portulaca*, *Typhonium*) were collected in Eucalypt forests during the wet season.

Conclusion: There are three species, that have no formal threatened status and which are known from single records from the Weipa area, which may occur in potential mining areas (*Calochilus* sp. (Weipa B.R.Jahnke 5, *Portulaca* sp. (Weipa Mission R.L.Specht+ W233), *Typhonium weipanum*). All are ephemeral herbaceous species collected during the wet season.

Actions required: Target *Calochilus* sp. (Weipa B.R.Jahnke 5, *Portulaca* sp. (Weipa Mission R.L.Specht+ W233), *Typhonium weipanum* during during wet season surveys of proposed mining areas. If located, voucher collections should lodged with the Queensland Herbarium and habitat protected.

4.17 Other Conservation Areas

A range of conservation areas have been suggested in on-site studies over the last 20 years (Gould 2004, Winter nd, Winter *et al.* 1985):

- West Andoom vine forest patches
- Embley River vine forest patches including Bellevue Ck and Dry Ck
- Rhum Point vine forest patches
- Kerr Point foreshore
- Trunding Creek headwaters)
- Mission River foreshore (west of Andoomajettie Point)
- Meeka Scrub
- Dinah Creek
- Peppan Creek
- Willum Swamp
- Sunrise Creek
- Freshwater lagoons of the Mapoon Plain
- Botchet Swamp
- Core reserves of *Eucalyptus tetradonta*

Conclusion: A range of conservation areas have been suggested in on-site studies over the last 20 years by Gould (2004), Cameron & Cogger (1992), and Winter (nd), Winter *et al.* (1985).

Actions required: Determine environmental values of areas above for potential inclusion within CMP Con areas.

4.18 Rehabilitation Areas

This category refers to rehabilitation areas which will be the subject of the Rehabilitation Management Plan.

5. Discussion and conclusions

The preceding sections have provided an analysis and mapping of the environmental values across the lease area. These are based on a list of values provided in the LUMP (p. 23), namely:

- Environmentally Sensitive Areas (ESAs) - Pine River Fish Habitat Area
- Threatened Regional Ecosystems
- Wild Rivers Area (Wenlock River)
- Matters of National Environmental Significance Areas - Cape York Peninsula Natural Heritage Place (ID 105968) and Commonwealth Marine Area (North Marine Region)
- Other Conservation Areas – three National Estate areas, three Nationally Important wetland aggregations
- Sensitive vegetation - Queensland wetlands, Limited overall extent REs, Unrepresented or poorly represented REs, Restricted occurrence REs
- Traditional environment areas – Weipa shell mounds
- Unique Landscape Features – four geological and landform sites
- Terrestrial Refugia/ Biodiversity Hotspots – rainforests and springs
- Aquatic Refugia/ Biodiversity Hotspots
- Habitat corridors – based on Cape York Peninsula BPA corridors
- Habitat Cores & Nodes
- Threatened Flora and Fauna – these are not mapped
- Migratory species
- Other significant flora and fauna

Areas where these values intersect with proposed mining areas (CMP 5mB) are mapped in Figure 23 except for:

- *Threatened Flora and Fauna, Migratory species and Other significant flora and fauna* whose data are not yet adequate for accurately mapping potential conflict areas associated with key habitat. Additionally, specific surveys by RTAW for Quolls are still ongoing.
- Cape York Peninsula Natural Heritage Place (ID 105968) which covers the entire lease area.
- Poorly represented REs
- bauxite landscape values

Figure 23 shows that the main areas of overlap between identified environmental values and proposed mining areas occur at:

- Vrilya Point,
- East bank of Wenlock River
- Pennefather River area,
- Pine River area, and
- south-east of the Embley River.

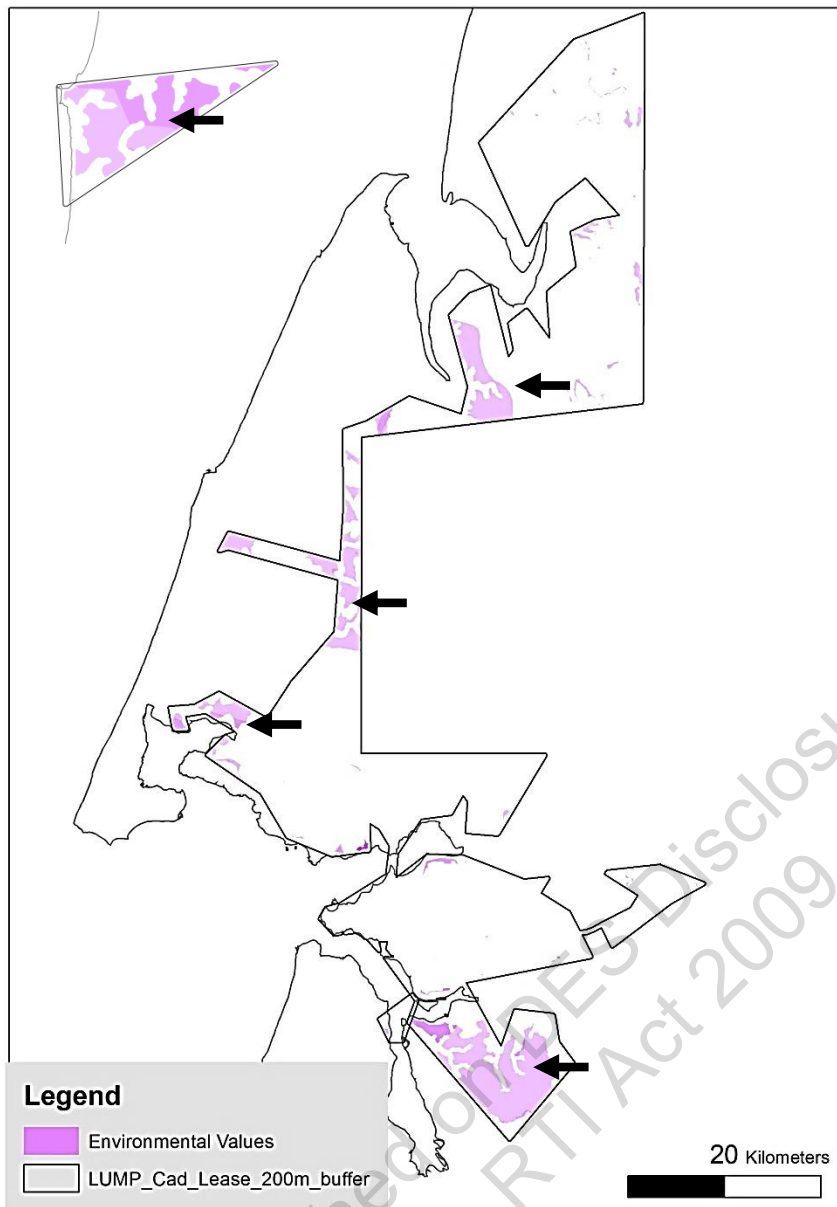


Figure 23 – Areas of overlap between environmental values and proposed mining areas – darker colours indicate multiple values – aggregations shown by ← (excluding poorly represented REs and bauxite landscapes)

Figure 24 below shows the very significant areas of overlap of *poorly represented REs* and *bauxite landscape values* with proposed mining areas. As discussed above (**Section 4.7**), two of the major environmental impacts of this project are:

- the clearing and fragmentation of Regional Ecosystem 3.5.2
- removal of regolith from the bauxite landscape

Current indications suggest that RE 3.5.2 cannot be rehabilitated after mining. Therefore the securing of ecologically effective examples of this community (Regional Ecosystem 3.5.2) with corridors and a representative sample of bauxite regolith are amongst the key priorities for this LUMP.

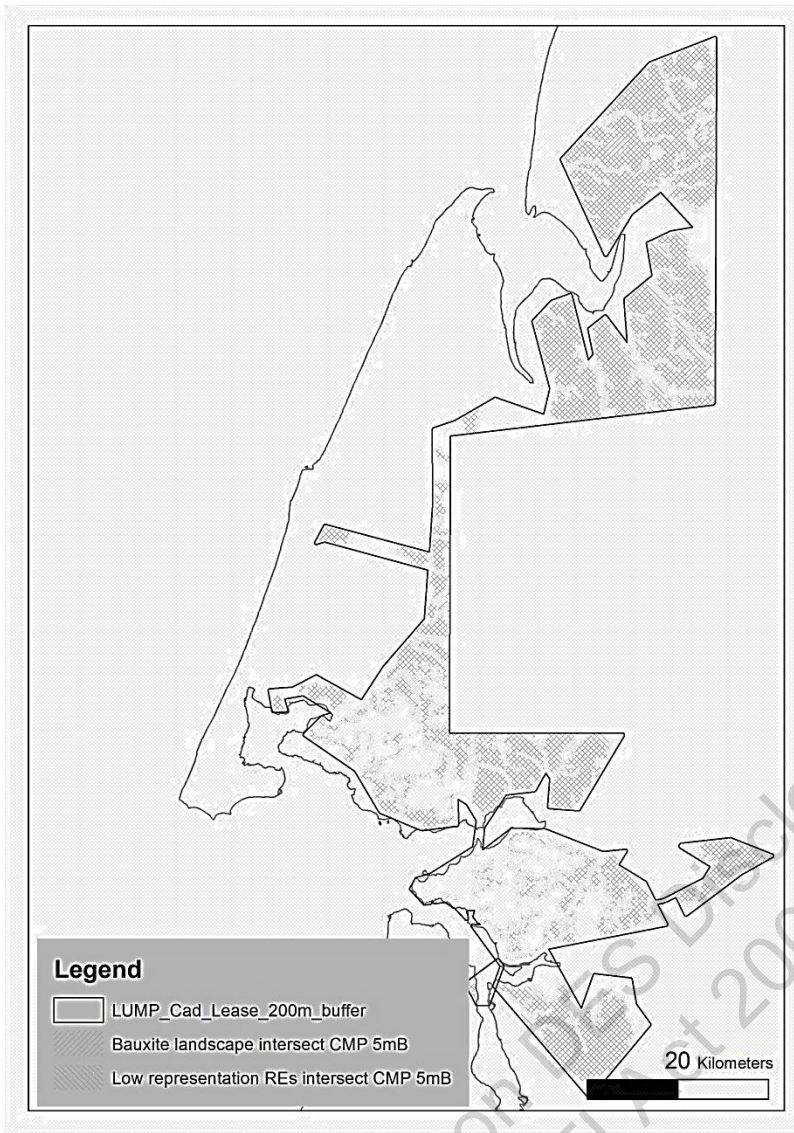


Figure 24 – Areas of overlap between bauxite landscape values / poorly represented REs and proposed mining areas

6. Collated Actions

Based on the assessment above the following actions are recommended in order to effectively protect the environmental values of the 154,577 ha lease area.

Conservation Management Zones (Section 2)

- Redraft proposed Conservation Management Zones to resolve overlaps between CMP areas.

Environmentally Sensitive Areas (Section 4.1)

- Redraft proposed Conservation Management Zone (CMP 5mB) to buffer Pine River Fish Habitat Area by at least 200 metres.
- Ensure that runoff and land use activities do not adversely impact on Fish Habitat Area.

Threatened Regional Ecosystems (Section 4.3)

- Redraft proposed Conservation Management Zone (CMP 5mB) to exclude threatened 55 ha of threatened REs (3.2.10, 3.2.25).

Wenlock River (Section 4.4)

- Redraft proposed Conservation Management Zone (CMP 5mB) to exclude 2,814 ha of Wenlock River Preservation area to protect riverine processes and natural values of system.

Matters of National Environmental Significance (Section 4.5)

- Investigate the occurrence of National Heritage values (Cape York Peninsula Natural Heritage ID 105968) across the lease area and protect using the CMP system
- Undertake appropriate management of tidal/ intertidal areas to reduce impacts on receiving coastal waters and threatened species of Commonwealth Marine Areas
- Ensure that runoff and land use activities do not adversely impact on Commonwealth Marine Areas.

Other Conservation areas/ Traditional environment areas (Sections 4.6, 4.8)

- Avoid impacts of mining on *Register of National Estate* areas (4,013 ha in northern part of lease).
- Exclude 1,425 ha of Weipa shell mounds from proposed mining areas.
- Exclude 128 ha of *Nationally Important Wetlands* from proposed mining areas.
- Re-draft CMP areas to ensure at least 200 metre buffers from *Nationally Important Wetlands*

Sensitive vegetation (Section 4.7)

- Exclude 250 ha of wetlands from areas proposed for mining.
- Ensure at least 100m buffers for all natural wetlands from proposed mining areas.
- Exclude 55 ha of REs of limited extent in Red Beach area (RE 3.2.25) from proposed mining areas.
- Exclude 926 ha of unrepresented REs (3.7.3, 3.3.63, 3.3.39) from proposed mining areas
- Exclude 1,318 ha of poorly represented REs (3.5.11, 3.2.5, 3.2.3) from proposed mining areas.
- Exclude 2 ha of restricted occurrence REs (3.9.4, 3.3.39) from proposed mining areas.
- Identify and secure ecologically sustainable examples of *poorly represented* Regional Ecosystems 3.5.2 as suggested by Cameron & Cogger (1992) and Gould (2004).

Unique landscape features (Section 4.9)

- Investigate and propose areas to protect examples of three *Unique Landscape Features* (Jardine River National Park and swamps, Pennefather – Duyfken sinkholes, Macdonald River to Skardon River).
- Investigate and propose areas to provide a representative example of in-situ bauxite regolith.

Terrestrial refugia – Rainforest (Section 4.10)

- Exclude 131 ha of rainforest from proposed mining areas.
- Use satellite imagery/ aerial photos and ground-truthing to identify unmapped rainforest and remove from proposed mining areas.
- Propose adequate buffers for rainforest areas.

Terrestrial refugia – Springs (Section 4.10)

- Identify environmental values of potential spring areas using field investigations.
- Exclude areas of confirmed spring field and ensure adequate buffers of a minimum of 200 metres
- Ensure that key examples of spring fed vineforest remain protected in ecologically effective landscape positions.
- Undertake monitoring of key springs to track trajectory of water flow (quantity & quality) and biocondition over time.

Habitat Corridors (Section 4.12)

- Exclude 71 ha of BPA identified corridors from proposed mining areas.
- Propose a network of corridors in conjunction with the retention of representative areas of Regional Ecosystem 3.5.2.

Threatened flora and fauna (Section 4.14)

- Determine extent of key habitat for 26 threatened species likely to be directly impacted by mining activities on Regional Ecosystem 3.5.2.
- Investigate opportunities for protection of key habitat areas for threatened species.
- Identify representative areas to provide ecologically sustainable examples of eucalypt woodland habitat for potentially 26 threatened species. For example, these may include:
 - protection of up to 1 km buffer of vegetation along freshwater riparian corridors for Red Goshawk (Curtis *et al.* 2012, DERM 2012)
 - protection of escarpment edge laterite rock-piles and wetlands for Quolls (Curtis *et al.* 2012, Hill & Ward 2010)
- Develop program to monitor threatened species across the lease especially those most strongly affected by eucalypt woodland removal. Examples of monitoring activities are provided in recovery plans (DERM 2012, Hill & Ward 2010).
- Undertake recovery activities for threatened species such as for Quolls: the protection of key secure populations through protection of habitat (Hill & Ward 2010).

Migratory species (Section 4.15)

- Ensure that all Frigatebird roosts are protected by inclusion in CMP Con areas.
- Ensure that mining activities do not impact adversely on roost areas.

Other significant flora and fauna (Section 4.16)

- Target *Calochilus* sp. (Weipa B.R.Jahnke 5, *Portulaca* sp. (Weipa Mission R.L.Specht+W233), *Typhonium weipanicum* during wet season surveys of proposed mining areas. If located, voucher collections should be lodged with the Queensland Herbarium and their habitat protected.

Other Conservation Areas (Section 4.17)

- Determine environmental values of *Other Conservation areas* (**Section 4.17**) for potential inclusion within CMP Con areas.

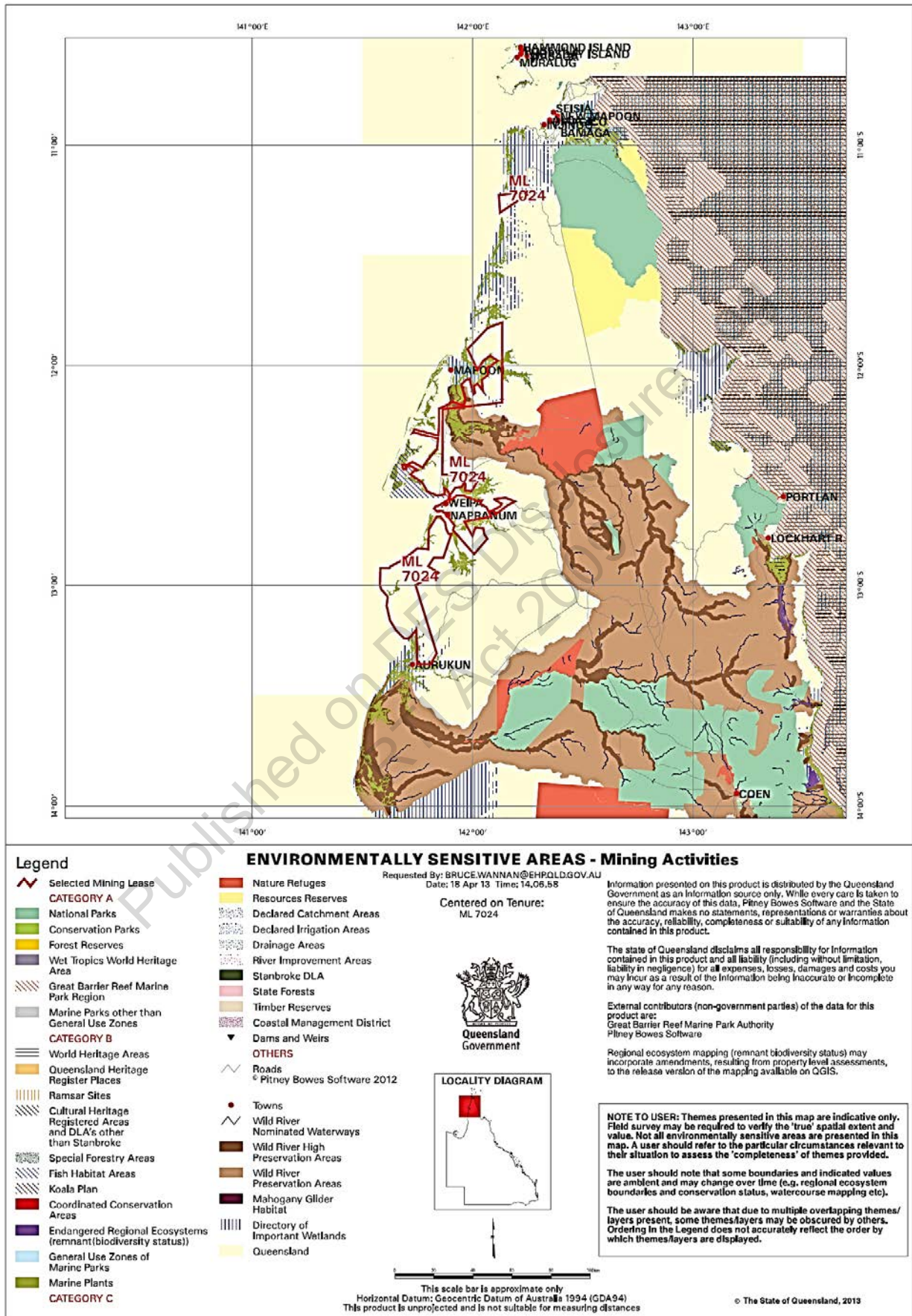
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Appendices

Appendix A - Environmentally Sensitive Areas



Appendix B – MNES see separate attachments

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EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

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[Summary](#)

[Details](#)

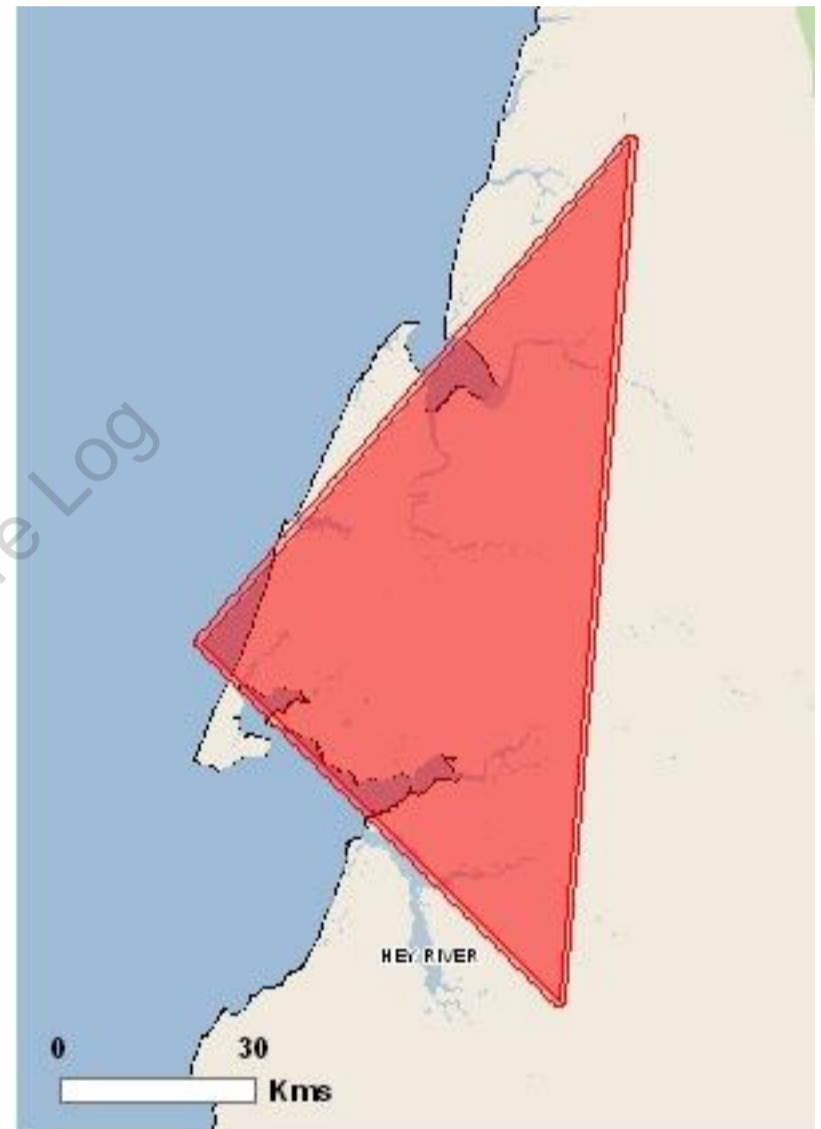
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[Coordinates](#)

[Buffer: 1.0Km](#)



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

| | |
|---|------|
| World Heritage Properties: | None |
| National Heritage Places: | 1 |
| Wetlands of International Importance: | None |
| Great Barrier Reef Marine Park: | None |
| Commonwealth Marine Areas: | 1 |
| Listed Threatened Ecological Communities: | None |
| Listed Threatened Species: | 28 |
| Listed Migratory Species: | 35 |

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As [heritage values](#) of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate.

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

| | |
|---|------|
| Commonwealth Land: | 1 |
| Commonwealth Heritage Places: | None |
| Listed Marine Species: | 83 |
| Whales and Other Cetaceans: | 11 |
| Critical Habitats: | None |
| Commonwealth Reserves: | None |

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

| | |
|--|------|
| Place on the RNE: | 5 |
| State and Territory Reserves: | None |
| Regional Forest Agreements: | None |
| Invasive Species: | 13 |
| Nationally Important Wetlands: | 2 |
| Key Ecological Features (Marine) | 1 |

Details

Matters of National Environmental Significance

National Heritage Properties [\[Resource Information \]](#)

| Name | State | Status |
|-------------------------------------|-------|-----------------|
| Natural | | |
| Cape York Peninsula | QLD | Nominated place |

Commonwealth Marine Areas [\[Resource Information \]](#)

Approval may be required for a proposed activity that is likely to have a significant impact on the environment in a Commonwealth Marine Area, when the action is outside the Commonwealth Marine Area, or the environment anywhere when the action is taken within the Commonwealth Marine Area. Generally the Commonwealth Marine Area stretches from three nautical miles to two hundred nautical miles from the coast.

| Name |
|-------------------------|
| EEZ and Territorial Sea |

Marine Regions [\[Resource Information \]](#)

If you are planning to undertake action in an area in or close to a Commonwealth Marine Area, and a marine bioregional plan has been prepared for the Commonwealth Marine Area in that area, the marine bioregional plan may inform your decision as to whether to refer your proposed action under the EPBC Act.

| Name |
|-----------------------|
| North |

Listed Threatened Species [\[Resource Information \]](#)

| Name | Status | Type of Presence |
|---|------------|--|
| Birds | | |
| Erythrotriorchis radiatus Red Goshawk [942] | Vulnerable | Species or species habitat likely to occur within area |
| Erythrura gouldiae Gouldian Finch [413] | Endangered | Species or species habitat may occur within area |
| Psephotus chrysopterygius Golden-shouldered Parrot [720] | Endangered | Species or species habitat may occur within area |
| Mammals | | |
| Balaenoptera musculus Blue Whale [36] | Endangered | Species or species habitat may occur within area |
| Dasyurus hallucatus Northern Quoll [331] | Endangered | Species or species |

| Name | Status | Type of Presence |
|--|------------|---|
| Megaptera novaeangliae Humpback Whale [38] | Vulnerable | habitat likely to occur within area Species or species habitat may occur within area |
| Notomys aquilo Northern Hopping-mouse, Woorrentinta [123] | Vulnerable | Species or species habitat may occur within area |
| Pteropus conspicillatus Spectacled Flying-fox [185] | Vulnerable | Species or species habitat may occur within area |
| Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66] | Vulnerable | Species or species habitat may occur within area |
| Plants | | |
| Cajanus mareebensis [8635] | Endangered | Species or species habitat may occur within area |
| Calophyllum bicolor [11371] | Vulnerable | Species or species habitat likely to occur within area |
| Cepobaculum carronii an orchid [78700] | Vulnerable | Species or species habitat may occur within area |
| Dendrobium bigibbum Cooktown Orchid [10306] | Vulnerable | Species or species habitat known to occur within area |
| Dendrobium johannis [13585] | Vulnerable | Species or species habitat known to occur within area |
| Solanum dunalianum [13819] | Vulnerable | Species or species habitat likely to occur within area |
| Spathoglottis plicata [19694] | Vulnerable | Species or species habitat likely to occur within area |
| Reptiles | | |
| Caretta caretta Loggerhead Turtle [1763] | Endangered | Breeding likely to occur within area |
| Chelonia mydas Green Turtle [1765] | Vulnerable | Breeding known to occur within area |
| Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Breeding likely to occur within area |
| Egernia rugosa Yakka Skink [1420] | Vulnerable | Species or species habitat may occur within area |
| Eretmochelys imbricata Hawksbill Turtle [1766] | Vulnerable | Breeding known to occur within area |
| Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767] | Endangered | Breeding known to occur within area |
| Natator depressus Flatback Turtle [59257] | Vulnerable | Breeding known to occur within area |
| Sharks | | |

| Name | Status | Type of Presence |
|---|-----------------------|--|
| Glyphis glyphis Speartooth Shark [82453] | Critically Endangered | Species or species habitat known to occur within area |
| Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447] | Vulnerable | Species or species habitat likely to occur within area |
| Pristis microdon Freshwater Sawfish [66182] | Vulnerable | Species or species habitat likely to occur within area |
| Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442] | Vulnerable | Species or species habitat may occur within area |
| Rhincodon typus Whale Shark [66680] | Vulnerable | Species or species habitat may occur within area |

Listed Migratory Species [[Resource Information](#)]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

| Name | Threatened | Type of Presence |
|--|------------|--|
| Migratory Marine Birds | | |
| Apus pacificus Fork-tailed Swift [678] | | Species or species habitat likely to occur within area |
| Fregata ariel Lesser Frigatebird, Least Frigatebird [1012] | | Foraging, feeding or related behaviour likely to occur within area |
| Sterna albifrons Little Tern [813] | | Species or species habitat may occur within area |
| Migratory Marine Species | | |
| Balaenoptera edeni Bryde's Whale [35] | | Species or species habitat may occur within area |
| Balaenoptera musculus Blue Whale [36] | Endangered | Species or species habitat may occur within area |
| Caretta caretta Loggerhead Turtle [1763] | Endangered | Breeding likely to occur within area |
| Chelonia mydas Green Turtle [1765] | Vulnerable | Breeding known to occur within area |
| Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774] | | Species or species habitat likely to occur within area |
| Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Breeding likely to occur within area |
| Dugong dugon Dugong [28] | | Species or species habitat known to occur within area |
| Eretmochelys imbricata Hawksbill Turtle [1766] | Vulnerable | Breeding known to occur within area |
| Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767] | Endangered | Breeding known to occur within area |
| Megaptera novaeangliae Humpback Whale [38] | Vulnerable | Species or species habitat may occur within |

| Name | Threatened | Type of Presence area |
|---|------------|--|
| Natator depressus Flatback Turtle [59257] | Vulnerable | Breeding known to occur within area |
| Orcaella brevirostris Irrawaddy Dolphin [45] | | Species or species habitat may occur within area |
| Orcinus orca Killer Whale, Orca [46] | | Species or species habitat may occur within area |
| Rhincodon typus Whale Shark [66680] | Vulnerable | Species or species habitat may occur within area |
| Sousa chinensis Indo-Pacific Humpback Dolphin [50] | | Species or species habitat may occur within area |
| Migratory Terrestrial Species | | |
| Coracina tenuirostris melvillensis Melville Cicadabird [26187] | | Species or species habitat may occur within area |
| Erythrura gouldiae Gouldian Finch [413] | Endangered | Species or species habitat may occur within area |
| Haliaeetus leucogaster White-bellied Sea-Eagle [943] | | Species or species habitat known to occur within area |
| Hirundo rustica Barn Swallow [662] | | Species or species habitat may occur within area |
| Merops ornatus Rainbow Bee-eater [670] | | Species or species habitat may occur within area |
| Monarcha melanopsis Black-faced Monarch [609] | | Species or species habitat known to occur within area |
| Monarcha trivirgatus Spectacled Monarch [610] | | Species or species habitat known to occur within area |
| Myiagra cyanoleuca Satin Flycatcher [612] | | Species or species habitat known to occur within area |
| Psephotus chrysopterygius Golden-shouldered Parrot [720] | Endangered | Species or species habitat may occur within area |
| Rhipidura rufifrons Rufous Fantail [592] | | Species or species habitat known to occur within area |
| Migratory Wetlands Species | | |
| Ardea alba Great Egret, White Egret [59541] | | Species or species habitat known to occur within area |
| Ardea ibis Cattle Egret [59542] | | Species or species habitat likely to occur within area |
| Gallinago hardwickii Latham's Snipe, Japanese Snipe [863] | | Roosting may occur within area |

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| Name | Threatened | Type of Presence |
|--|------------|--------------------------------------|
| Limosa lapponica Bar-tailed Godwit [844] | | Roosting known to occur within area |
| Numenius minutus Little Curlew, Little Whimbrel [848] | | Roosting likely to occur within area |
| Numenius phaeopus Whimbrel [849] | | Roosting known to occur within area |
| Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833] | | Roosting known to occur within area |

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

| Name |
|--------------------------------|
| Defence - SCHERGER - RAAF BASE |

Listed Marine Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

| Name | Threatened | Type of Presence |
|---|------------|--|
| Birds | | |
| Anseranas semipalmata Magpie Goose [978] | | Species or species habitat may occur within area |
| Apus pacificus Fork-tailed Swift [678] | | Species or species habitat likely to occur within area |
| Ardea alba Great Egret, White Egret [59541] | | Species or species habitat known to occur within area |
| Ardea ibis Cattle Egret [59542] | | Species or species habitat likely to occur within area |
| Fregata ariel Lesser Frigatebird, Least Frigatebird [1012] | | Foraging, feeding or related behaviour likely to occur within area |
| Gallinago hardwickii Latham's Snipe, Japanese Snipe [863] | | Roosting may occur within area |
| Gallinago megala Swinhoe's Snipe [864] | | Roosting likely to occur within area |
| Gallinago stenura Pin-tailed Snipe [841] | | Roosting likely to occur within area |
| Haliaeetus leucogaster White-bellied Sea-Eagle [943] | | Species or species habitat known to occur within area |

| Name | Threatened | Type of Presence |
|--|------------|---|
| Himantopus himantopus Black-winged Stilt [870] | | Roosting known to occur within area |
| Hirundo rustica Barn Swallow [662] | | Species or species habitat may occur within area |
| Limosa lapponica Bar-tailed Godwit [844] | | Roosting known to occur within area |
| Merops ornatus Rainbow Bee-eater [670] | | Species or species habitat may occur within area |
| Monarcha melanopsis Black-faced Monarch [609] | | Species or species habitat known to occur within area |
| Monarcha trivirgatus Spectacled Monarch [610] | | Species or species habitat known to occur within area |
| Myiagra cyanoleuca Satin Flycatcher [612] | | Species or species habitat known to occur within area |
| Numenius minutus Little Curlew, Little Whimbrel [848] | | Roosting likely to occur within area |
| Numenius phaeopus Whimbrel [849] | | Roosting known to occur within area |
| Pandion haliaetus Osprey [952] | | Breeding known to occur within area |
| Rhipidura rufifrons Rufous Fantail [592] | | Species or species habitat known to occur within area |
| Sterna albifrons Little Tern [813] | | Species or species habitat may occur within area |
| Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833] | | Roosting known to occur within area |
| Fish | | |
| Acentronura tentaculata Shortpouch Pygmy Pipehorse [66187] | | Species or species habitat may occur within area |
| Campichthys tricarinatus Three-keel Pipefish [66192] | | Species or species habitat may occur within area |
| Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194] | | Species or species habitat may occur within area |
| Choeroichthys suillus Pig-snouted Pipefish [66198] | | Species or species habitat may occur within area |
| Corythoichthys amplexus Fijian Banded Pipefish, Brown-banded Pipefish [66199] | | Species or species habitat may occur within area |
| Corythoichthys flavofasciatus Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200] | | Species or species habitat may occur within area |
| Corythoichthys intestinalis Australian Messmate Pipefish, Banded Pipefish | | Species or species |

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| Name | Threatened | Type of Presence |
|--|------------|--|
| [66202] | | habitat may occur within area |
| Corythoichthys ocellatus Orange-spotted Pipefish, Ocellated Pipefish [66203] | | Species or species habitat may occur within area |
| Corythoichthys schultzi Schultz's Pipefish [66205] | | Species or species habitat may occur within area |
| Cosmocampus maxweberi Maxweber's Pipefish [66209] | | Species or species habitat may occur within area |
| Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210] | | Species or species habitat may occur within area |
| Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211] | | Species or species habitat may occur within area |
| Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212] | | Species or species habitat may occur within area |
| Festucalex cinctus Girdled Pipefish [66214] | | Species or species habitat may occur within area |
| Halicampus brocki Brock's Pipefish [66219] | | Species or species habitat may occur within area |
| Halicampus dunckeri Red-hair Pipefish, Duncker's Pipefish [66220] | | Species or species habitat may occur within area |
| Halicampus grayi Mud Pipefish, Gray's Pipefish [66221] | | Species or species habitat may occur within area |
| Halicampus spirostris Spiny-snout Pipefish [66225] | | Species or species habitat may occur within area |
| Haliichthys taeniophorus Ribbioned Pipehorse, Ribbioned Seadragon [66226] | | Species or species habitat may occur within area |
| Hippichthys cyanospilos Blue-speckled Pipefish, Blue-spotted Pipefish [66228] | | Species or species habitat may occur within area |
| Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231] | | Species or species habitat may occur within area |
| Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234] | | Species or species habitat may occur within area |
| Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236] | | Species or species habitat may occur within area |
| Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237] | | Species or species habitat may occur within area |
| Hippocampus planifrons Flat-face Seahorse [66238] | | Species or species habitat may occur within area |

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| Name | Threatened | Type of Presence area |
|---|------------|--|
| Hippocampus spinosissimus Hedgehog Seahorse [66239] | | Species or species habitat may occur within area |
| Micrognathus brevirostris thorntail Pipefish, Thorn-tailed Pipefish [66254] | | Species or species habitat may occur within area |
| Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272] | | Species or species habitat may occur within area |
| Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183] | | Species or species habitat may occur within area |
| Solenostomus paegnius Rough-snout Ghost Pipefish [68425] | | Species or species habitat may occur within area |
| Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279] | | Species or species habitat may occur within area |
| Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280] | | Species or species habitat may occur within area |
| Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281] | | Species or species habitat may occur within area |
| Mammals | | |
| Dugong dugon Dugong [28] | | Species or species habitat known to occur within area |
| Reptiles | | |
| Acalyptophis peronii Horned Seasnake [1114] | | Species or species habitat may occur within area |
| Aipysurus duboisii Dubois' Seasnake [1116] | | Species or species habitat may occur within area |
| Aipysurus eydouxii Spine-tailed Seasnake [1117] | | Species or species habitat may occur within area |
| Aipysurus laevis Olive Seasnake [1120] | | Species or species habitat may occur within area |
| Astrotia stokesii Stokes' Seasnake [1122] | | Species or species habitat may occur within area |
| Caretta caretta Loggerhead Turtle [1763] | Endangered | Breeding likely to occur within area |
| Chelonia mydas Green Turtle [1765] | Vulnerable | Breeding known to occur within area |
| Crocodylus johnstoni Freshwater Crocodile, Johnston's Crocodile, Johnston's River Crocodile [1773] | | Species or species habitat may occur within area |
| Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774] | | Species or species habitat likely to occur within area |

| Name | Threatened | Type of Presence |
|--|------------|--|
| Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Breeding likely to occur within area |
| Disteira kingii Spectacled Seasnake [1123] | | Species or species habitat may occur within area |
| Disteira major Olive-headed Seasnake [1124] | | Species or species habitat may occur within area |
| Enhydrina schistosa Beaked Seasnake [1126] | | Species or species habitat may occur within area |
| Eretmochelys imbricata Hawksbill Turtle [1766] | Vulnerable | Breeding known to occur within area |
| Hydrelaps darwiniensis Black-ringed Seasnake [1100] | | Species or species habitat may occur within area |
| Hydrophis atriceps Black-headed Seasnake [1101] | | Species or species habitat may occur within area |
| Hydrophis elegans Elegant Seasnake [1104] | | Species or species habitat may occur within area |
| Hydrophis gracilis Slender Seasnake [1106] | | Species or species habitat may occur within area |
| Hydrophis mcdowelli null [25926] | | Species or species habitat may occur within area |
| Hydrophis ornatus a seasnake [1111] | | Species or species habitat may occur within area |
| Hydrophis pacificus Large-headed Seasnake [1112] | | Species or species habitat may occur within area |
| Lapemis hardwickii Spine-bellied Seasnake [1113] | | Species or species habitat may occur within area |
| Laticauda colubrina a sea krait [1092] | | Species or species habitat may occur within area |
| Laticauda laticaudata a sea krait [1093] | | Species or species habitat may occur within area |
| Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767] | Endangered | Breeding known to occur within area |
| Natator depressus Flatback Turtle [59257] | Vulnerable | Breeding known to occur within area |
| Pelamis platurus Yellow-bellied Seasnake [1091] | | Species or species habitat may occur within area |

| Whales and other Cetaceans | | [Resource Information] |
|----------------------------|--------|--------------------------|
| Name | Status | Type of Presence |
| Mammals | | |

| Name | Status | Type of Presence |
|---|------------|--|
| Balaenoptera edeni Bryde's Whale [35] | | Species or species habitat may occur within area |
| Balaenoptera musculus Blue Whale [36] | Endangered | Species or species habitat may occur within area |
| Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60] | | Species or species habitat may occur within area |
| Grampus griseus Risso's Dolphin, Grampus [64] | | Species or species habitat may occur within area |
| Megaptera novaeangliae Humpback Whale [38] | Vulnerable | Species or species habitat may occur within area |
| Orcaella brevirostris Irrawaddy Dolphin [45] | | Species or species habitat may occur within area |
| Orcinus orca Killer Whale, Orca [46] | | Species or species habitat may occur within area |
| Sousa chinensis Indo-Pacific Humpback Dolphin [50] | | Species or species habitat may occur within area |
| Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51] | | Species or species habitat may occur within area |
| Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418] | | Species or species habitat likely to occur within area |
| Tursiops truncatus s. str. Bottlenose Dolphin [68417] | | Species or species habitat may occur within area |

Extra Information

Places on the RNE [[Resource Information](#)]

Note that not all Indigenous sites may be listed.

| Name | State | Status |
|---|-------|------------------|
| Natural | | |
| Pennefather / Port Musgrave | QLD | Indicative Place |
| Wik Region - Aurukun Place | QLD | Indicative Place |
| Bertiehaugh Dry Vine Forests | QLD | Registered |
| Indigenous | | |
| Janie Creek Sivvri Story Site | QLD | Indicative Place |
| Weipa Shell Mounds Area | QLD | Registered |

Invasive Species

[[Resource Information](#)]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

| Name | Status | Type of Presence |
|--|--------|--|
| Birds | | |
| Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803] | | Species or species habitat likely to occur within area |
| Lonchura punctulata Nutmeg Mannikin [399] | | Species or species habitat likely to occur within area |
| Passer domesticus House Sparrow [405] | | Species or species habitat likely to occur within area |
| Frogs | | |
| Bufo marinus Cane Toad [1772] | | Species or species habitat likely to occur within area |
| Rhinella marina Cane Toad [83218] | | Species or species habitat likely to occur within area |
| Mammals | | |
| Bos taurus Domestic Cattle [16] | | Species or species habitat likely to occur within area |
| Canis lupus familiaris Domestic Dog [82654] | | Species or species habitat likely to occur within area |
| Equus caballus Horse [5] | | Species or species habitat likely to occur within area |
| Felis catus Cat, House Cat, Domestic Cat [19] | | Species or species habitat likely to occur within area |
| Mus musculus House Mouse [120] | | Species or species habitat likely to occur within area |
| Rattus rattus Black Rat, Ship Rat [84] | | Species or species habitat likely to occur within area |
| Sus scrofa Pig [6] | | Species or species habitat likely to occur within area |
| Plants | | |
| Andropogon gayanus Gamba Grass [66895] | | Species or species habitat likely to occur within area |
| Nationally Important Wetlands | | [Resource Information] |
| Name | | State |
| Port Musgrave Aggregation | | QLD |
| Skardon River - Cotterell River Aggregation | | QLD |

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

| Name | Region |
|----------------------------------|--------|
| Gulf of Carpentaria coastal zone | North |

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Coordinates

-11.7 142.2,-12.9 142.1,-12.4 141.6,-11.7 142.2

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Department of Environment, Climate Change and Water, New South Wales](#)
- [-Department of Sustainability and Environment, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment and Natural Resources, South Australia](#)
- [-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts](#)
- [-Environmental and Resource Management, Queensland](#)
- [-Department of Environment and Conservation, Western Australia](#)
- [-Department of the Environment, Climate Change, Energy and Water](#)
- [-Birds Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-SA Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Atherton and Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [-State Forests of NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

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EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 08/05/13 10:20:40

[Summary](#)

[Details](#)

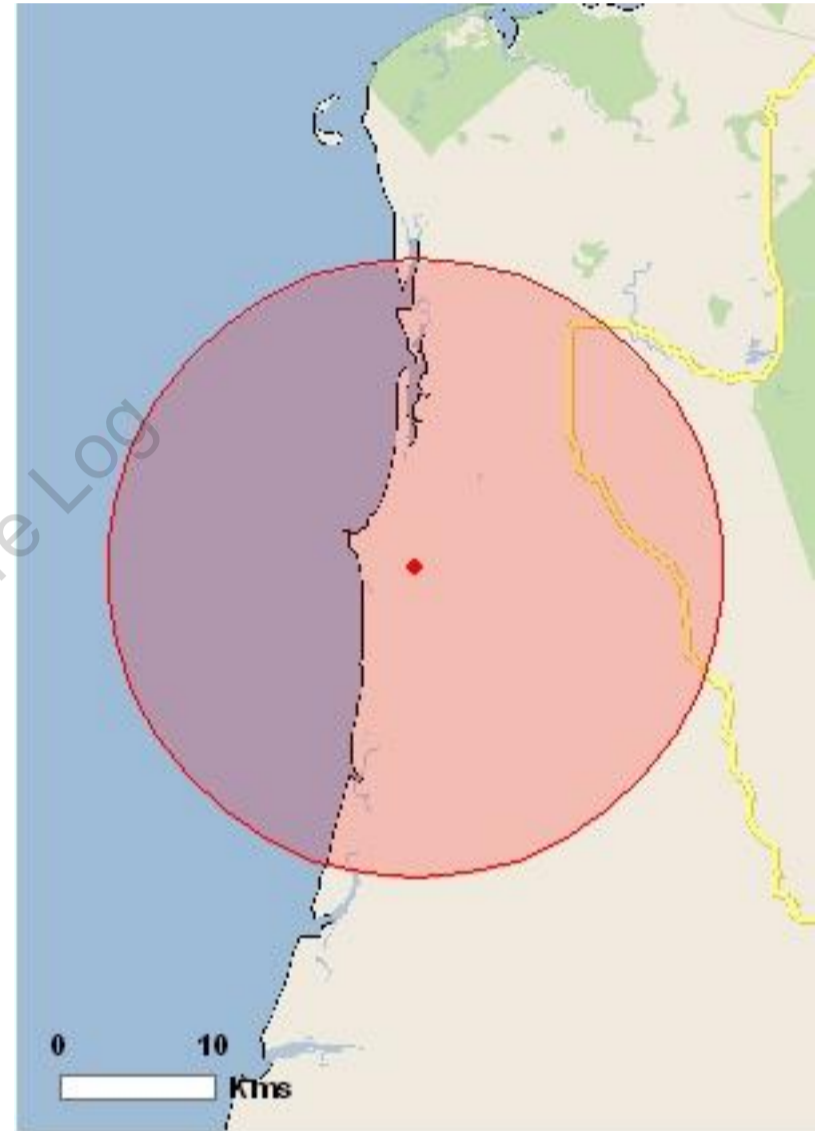
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[Coordinates](#)

[Buffer: 20.0Km](#)



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

| | |
|---|------|
| World Heritage Properties: | None |
| National Heritage Places: | 1 |
| Wetlands of International Importance: | None |
| Great Barrier Reef Marine Park: | None |
| Commonwealth Marine Areas: | 1 |
| Listed Threatened Ecological Communities: | None |
| Listed Threatened Species: | 30 |
| Listed Migratory Species: | 31 |

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As [heritage values](#) of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate.

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

| | |
|---|------|
| Commonwealth Land: | None |
| Commonwealth Heritage Places: | None |
| Listed Marine Species: | 77 |
| Whales and Other Cetaceans: | 11 |
| Critical Habitats: | None |
| Commonwealth Reserves: | None |

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

| | |
|--|------|
| Place on the RNE: | 2 |
| State and Territory Reserves: | None |
| Regional Forest Agreements: | None |
| Invasive Species: | 8 |
| Nationally Important Wetlands: | 2 |
| Key Ecological Features (Marine) | 1 |

Details

Matters of National Environmental Significance

National Heritage Properties [\[Resource Information \]](#)

| Name | State | Status |
|-------------------------------------|-------|-----------------|
| Natural | | |
| Cape York Peninsula | QLD | Nominated place |

Commonwealth Marine Areas [\[Resource Information \]](#)

Approval may be required for a proposed activity that is likely to have a significant impact on the environment in a Commonwealth Marine Area, when the action is outside the Commonwealth Marine Area, or the environment anywhere when the action is taken within the Commonwealth Marine Area. Generally the Commonwealth Marine Area stretches from three nautical miles to two hundred nautical miles from the coast.

| Name |
|-------------------------|
| EEZ and Territorial Sea |

Marine Regions [\[Resource Information \]](#)

If you are planning to undertake action in an area in or close to a Commonwealth Marine Area, and a marine bioregional plan has been prepared for the Commonwealth Marine Area in that area, the marine bioregional plan may inform your decision as to whether to refer your proposed action under the EPBC Act.

| Name |
|-----------------------|
| North |

Listed Threatened Species [\[Resource Information \]](#)

| Name | Status | Type of Presence |
|---|------------|--|
| Birds | | |
| Erythrotriorchis radiatus Red Goshawk [942] | Vulnerable | Species or species habitat likely to occur within area |
| Erythrura gouldiae Gouldian Finch [413] | Endangered | Species or species habitat may occur within area |
| Mammals | | |
| Balaenoptera musculus Blue Whale [36] | Endangered | Species or species habitat may occur within area |
| Conilurus penicillatus Brush-tailed Rabbit-rat, Brush-tailed Tree-rat, Pakooma [132] | Vulnerable | Species or species habitat may occur within area |
| Dasyurus hallucatus Northern Quoll [331] | Endangered | Species or species |

| Name | Status | Type of Presence |
|---|-----------------------|---|
| Hipposideros semoni Semon's Leaf-nosed Bat, Greater Wart-nosed Horseshoe-bat [180] | Endangered | habitat likely to occur within area Species or species habitat may occur within area |
| Megaptera novaeangliae Humpback Whale [38] | Vulnerable | Species or species habitat may occur within area |
| Notomys aquilo Northern Hopping-mouse, Woorrentinta [123] | Vulnerable | Species or species habitat may occur within area |
| Pteropus conspicillatus Spectacled Flying-fox [185] | Vulnerable | Species or species habitat may occur within area |
| Rhinolophus philippinensis (large form) Greater Large-eared Horseshoe Bat [66890] | Endangered | Species or species habitat may occur within area |
| Saccolaimus saccolaimus nudicluniatus Bare-rumped Sheathtail Bat [66889] | Critically Endangered | Species or species habitat may occur within area |
| Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66] | Vulnerable | Species or species habitat may occur within area |
| Plants | | |
| Arenga australasica Australian Arenga Palm [4067] | Vulnerable | Species or species habitat likely to occur within area |
| Cajanus mareebensis [8635] | Endangered | Species or species habitat may occur within area |
| Calophyllum bicolor [11371] | Vulnerable | Species or species habitat likely to occur within area |
| Cepobaculum carronii an orchid [78700] | Vulnerable | Species or species habitat likely to occur within area |
| Dendrobium bigibbum Cooktown Orchid [10306] | Vulnerable | Species or species habitat likely to occur within area |
| Dendrobium johannis [13585] | Vulnerable | Species or species habitat likely to occur within area |
| Streblus pendulinus Siah's Backbone, Sia's Backbone, Isaac Wood [21618] | Endangered | Species or species habitat likely to occur within area |
| Reptiles | | |
| Caretta caretta Loggerhead Turtle [1763] | Endangered | Species or species habitat known to occur within area |
| Chelonia mydas Green Turtle [1765] | Vulnerable | Breeding known to occur within area |
| Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Breeding likely to occur within area |
| Eretmochelys imbricata Hawksbill Turtle [1766] | Vulnerable | Breeding known to occur within area |

| Name | Status | Type of Presence |
|--|-----------------------|--|
| Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767] | Endangered | Breeding known to occur within area |
| Natator depressus Flatback Turtle [59257] | Vulnerable | Breeding known to occur within area |
| Sharks | | |
| Glyphis glyphis Spear-tooth Shark [82453] | Critically Endangered | Species or species habitat likely to occur within area |
| Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447] | Vulnerable | Species or species habitat likely to occur within area |
| Pristis microdon Freshwater Sawfish [66182] | Vulnerable | Species or species habitat likely to occur within area |
| Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442] | Vulnerable | Species or species habitat may occur within area |
| Rhincodon typus Whale Shark [66680] | Vulnerable | Species or species habitat may occur within area |
| Listed Migratory Species | | [Resource Information] |
| * Species is listed under a different scientific name on the EPBC Act - Threatened Species list. | | |
| Name | Threatened | Type of Presence |
| Migratory Marine Birds | | |
| Apus pacificus Fork-tailed Swift [678] | | Species or species habitat likely to occur within area |
| Fregata ariel Lesser Frigatebird, Least Frigatebird [1012] | | Foraging, feeding or related behaviour likely to occur within area |
| Sterna albifrons Little Tern [813] | | Species or species habitat may occur within area |
| Migratory Marine Species | | |
| Balaenoptera edeni Bryde's Whale [35] | | Species or species habitat may occur within area |
| Balaenoptera musculus Blue Whale [36] | Endangered | Species or species habitat may occur within area |
| Caretta caretta Loggerhead Turtle [1763] | Endangered | Species or species habitat known to occur within area |
| Chelonia mydas Green Turtle [1765] | Vulnerable | Breeding known to occur within area |
| Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774] | | Species or species habitat likely to occur within area |
| Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Breeding likely to occur within area |
| Dugong dugon Dugong [28] | | Species or species habitat known to occur within area |

| Name | Threatened | Type of Presence |
|--|------------|--|
| Eretmochelys imbricata Hawksbill Turtle [1766] | Vulnerable | Breeding known to occur within area |
| Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767] | Endangered | Breeding known to occur within area |
| Megaptera novaeangliae Humpback Whale [38] | Vulnerable | Species or species habitat may occur within area |
| Natator depressus Flatback Turtle [59257] | Vulnerable | Breeding known to occur within area |
| Orcaella brevirostris Irrawaddy Dolphin [45] | | Species or species habitat may occur within area |
| Orcinus orca Killer Whale, Orca [46] | | Species or species habitat may occur within area |
| Rhincodon typus Whale Shark [66680] | Vulnerable | Species or species habitat may occur within area |
| Sousa chinensis Indo-Pacific Humpback Dolphin [50] | | Species or species habitat may occur within area |
| Migratory Terrestrial Species | | |
| Coracina tenuirostris melvillensis Melville Cicadabird [26187] | | Species or species habitat may occur within area |
| Erythrura gouldiae Gouldian Finch [413] | Endangered | Species or species habitat may occur within area |
| Haliaeetus leucogaster White-bellied Sea-Eagle [943] | | Species or species habitat known to occur within area |
| Hirundo rustica Barn Swallow [662] | | Species or species habitat may occur within area |
| Merops ornatus Rainbow Bee-eater [670] | | Species or species habitat may occur within area |
| Monarcha frater Black-winged Monarch [607] | | Species or species habitat likely to occur within area |
| Monarcha melanopsis Black-faced Monarch [609] | | Species or species habitat likely to occur within area |
| Monarcha trivirgatus Spectacled Monarch [610] | | Species or species habitat likely to occur within area |
| Myiagra cyanoleuca Satin Flycatcher [612] | | Species or species habitat likely to occur within area |
| Rhipidura rufifrons Rufous Fantail [592] | | Species or species habitat known to occur within area |
| Migratory Wetlands Species | | |
| Ardea alba Great Egret, White Egret [59541] | | Species or species |

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| Name | Threatened | Type of Presence |
|--|------------|--|
| Ardea ibis Cattle Egret [59542] | | habitat likely to occur within area |
| Gallinago hardwickii Latham's Snipe, Japanese Snipe [863] | | Species or species habitat may occur within area |
| | | Species or species habitat may occur within area |

Other Matters Protected by the EPBC Act

Listed Marine Species [[Resource Information](#)]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

| Name | Threatened | Type of Presence |
|---|------------|--|
| Birds | | |
| Anseranas semipalmata Magpie Goose [978] | | Species or species habitat may occur within area |
| Apus pacificus Fork-tailed Swift [678] | | Species or species habitat likely to occur within area |
| Ardea alba Great Egret, White Egret [59541] | | Species or species habitat likely to occur within area |
| Ardea ibis Cattle Egret [59542] | | Species or species habitat may occur within area |
| Fregata ariel Lesser Frigatebird, Least Frigatebird [1012] | | Foraging, feeding or related behaviour likely to occur within area |
| Gallinago hardwickii Latham's Snipe, Japanese Snipe [863] | | Species or species habitat may occur within area |
| Haliaeetus leucogaster White-bellied Sea-Eagle [943] | | Species or species habitat known to occur within area |
| Hirundo rustica Barn Swallow [662] | | Species or species habitat may occur within area |
| Merops ornatus Rainbow Bee-eater [670] | | Species or species habitat may occur within area |
| Monarcha frater Black-winged Monarch [607] | | Species or species habitat likely to occur within area |

| Name | Threatened | Type of Presence |
|--|------------|--|
| Monarcha melanopsis Black-faced Monarch [609] | | Species or species habitat likely to occur within area |
| Monarcha trivirgatus Spectacled Monarch [610] | | Species or species habitat likely to occur within area |
| Myiagra cyanoleuca Satin Flycatcher [612] | | Species or species habitat likely to occur within area |
| Pandion haliaetus Osprey [952] | | Species or species habitat known to occur within area |
| Rhipidura rufifrons Rufous Fantail [592] | | Species or species habitat known to occur within area |
| Sterna albifrons Little Tern [813] | | Species or species habitat may occur within area |
| Fish | | |
| Acentronura tentaculata Shortpouch Pygmy Pipehorse [66187] | | Species or species habitat may occur within area |
| Campichthys tricarinatus Three-keel Pipefish [66192] | | Species or species habitat may occur within area |
| Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194] | | Species or species habitat may occur within area |
| Choeroichthys suillus Pig-snouted Pipefish [66198] | | Species or species habitat may occur within area |
| Corythoichthys amplexus Fijian Banded Pipefish, Brown-banded Pipefish [66199] | | Species or species habitat may occur within area |
| Corythoichthys flavofasciatus Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200] | | Species or species habitat may occur within area |
| Corythoichthys intestinalis Australian Messmate Pipefish, Banded Pipefish [66202] | | Species or species habitat may occur within area |
| Corythoichthys ocellatus Orange-spotted Pipefish, Ocellated Pipefish [66203] | | Species or species habitat may occur within area |
| Corythoichthys schultzi Schultz's Pipefish [66205] | | Species or species habitat may occur within area |
| Cosmocampus maxweberi Maxweber's Pipefish [66209] | | Species or species habitat may occur within area |
| Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210] | | Species or species habitat may occur within area |
| Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211] | | Species or species habitat may occur within area |

| Name | Threatened | Type of Presence |
|---|------------|--|
| Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212] | | Species or species habitat may occur within area |
| Festucalex cinctus Girdled Pipefish [66214] | | Species or species habitat may occur within area |
| Halicampus brocki Brock's Pipefish [66219] | | Species or species habitat may occur within area |
| Halicampus dunckeri Red-hair Pipefish, Duncker's Pipefish [66220] | | Species or species habitat may occur within area |
| Halicampus grayi Mud Pipefish, Gray's Pipefish [66221] | | Species or species habitat may occur within area |
| Halicampus spirostris Spiny-snout Pipefish [66225] | | Species or species habitat may occur within area |
| Haliichthys taeniophorus Ribbioned Pipehorse, Ribbioned Seadragon [66226] | | Species or species habitat may occur within area |
| Hippichthys cyanospilos Blue-speckled Pipefish, Blue-spotted Pipefish [66228] | | Species or species habitat may occur within area |
| Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231] | | Species or species habitat may occur within area |
| Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234] | | Species or species habitat may occur within area |
| Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236] | | Species or species habitat may occur within area |
| Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237] | | Species or species habitat may occur within area |
| Hippocampus planifrons Flat-face Seahorse [66238] | | Species or species habitat may occur within area |
| Hippocampus spinosissimus Hedgehog Seahorse [66239] | | Species or species habitat may occur within area |
| Micrognathus brevirostris thorntail Pipefish, Thorn-tailed Pipefish [66254] | | Species or species habitat may occur within area |
| Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272] | | Species or species habitat may occur within area |
| Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183] | | Species or species habitat may occur within area |
| Solenostomus paegnius Rough-snout Ghost Pipefish [68425] | | Species or species habitat may occur within area |

| Name | Threatened | Type of Presence |
|--|------------|--|
| Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279] | | Species or species habitat may occur within area |
| Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short- tailed Pipefish [66280] | | Species or species habitat may occur within area |
| Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281] | | Species or species habitat may occur within area |
| Mammals | | |
| Dugong dugon Dugong [28] | | Species or species habitat known to occur within area |
| Reptiles | | |
| Acalyptophis peronii Horned Seasnake [1114] | | Species or species habitat may occur within area |
| Aipysurus duboisii Dubois' Seasnake [1116] | | Species or species habitat may occur within area |
| Aipysurus eydouxii Spine-tailed Seasnake [1117] | | Species or species habitat may occur within area |
| Aipysurus laevis Olive Seasnake [1120] | | Species or species habitat may occur within area |
| Astrotia stokesii Stokes' Seasnake [1122] | | Species or species habitat may occur within area |
| Caretta caretta Loggerhead Turtle [1763] | Endangered | Species or species habitat known to occur within area |
| Chelonia mydas Green Turtle [1765] | Vulnerable | Breeding known to occur within area |
| Crocodylus johnstoni Freshwater Crocodile, Johnston's Crocodile, Johnston's River Crocodile [1773] | | Species or species habitat may occur within area |
| Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774] | | Species or species habitat likely to occur within area |
| Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Breeding likely to occur within area |
| Disteira kingii Spectacled Seasnake [1123] | | Species or species habitat may occur within area |
| Disteira major Olive-headed Seasnake [1124] | | Species or species habitat may occur within area |
| Enhydrina schistosa Beaked Seasnake [1126] | | Species or species habitat may occur within area |
| Eretmochelys imbricata Hawksbill Turtle [1766] | Vulnerable | Breeding known to occur within area |
| Hydrelaps darwiniensis Black-ringed Seasnake [1100] | | Species or species |

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| Name | Threatened | Type of Presence |
|--|------------|---|
| Hydrophis atriceps Black-headed Seasnake [1101] | | habitat may occur within area Species or species habitat may occur within area |
| Hydrophis elegans Elegant Seasnake [1104] | | Species or species habitat may occur within area |
| Hydrophis gracilis Slender Seasnake [1106] | | Species or species habitat may occur within area |
| Hydrophis mcdowelli null [25926] | | Species or species habitat may occur within area |
| Hydrophis ornatus a seasnake [1111] | | Species or species habitat may occur within area |
| Hydrophis pacificus Large-headed Seasnake [1112] | | Species or species habitat may occur within area |
| Lapemis hardwickii Spine-bellied Seasnake [1113] | | Species or species habitat may occur within area |
| Laticauda colubrina a sea krait [1092] | | Species or species habitat may occur within area |
| Laticauda laticaudata a sea krait [1093] | | Species or species habitat may occur within area |
| Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767] | Endangered | Breeding known to occur within area |
| Natator depressus Flatback Turtle [59257] | Vulnerable | Breeding known to occur within area |
| Pelamis platurus Yellow-bellied Seasnake [1091] | | Species or species habitat may occur within area |
| Whales and other Cetaceans | | [Resource Information] |
| Name | Status | Type of Presence |
| Mammals | | |
| Balaenoptera edeni Bryde's Whale [35] | | Species or species habitat may occur within area |
| Balaenoptera musculus Blue Whale [36] | Endangered | Species or species habitat may occur within area |
| Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60] | | Species or species habitat may occur within area |
| Grampus griseus Risso's Dolphin, Grampus [64] | | Species or species habitat may occur within area |
| Megaptera novaeangliae Humpback Whale [38] | Vulnerable | Species or species habitat may occur within area |

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| Name | Status | Type of Presence |
|---|--------|--|
| Orcaella brevirostris Irrawaddy Dolphin [45] | | Species or species habitat may occur within area |
| Orcinus orca Killer Whale, Orca [46] | | Species or species habitat may occur within area |
| Sousa chinensis Indo-Pacific Humpback Dolphin [50] | | Species or species habitat may occur within area |
| Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51] | | Species or species habitat may occur within area |
| Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418] | | Species or species habitat likely to occur within area |
| Tursiops truncatus s. str. Bottlenose Dolphin [68417] | | Species or species habitat may occur within area |

Extra Information

Places on the RNE [[Resource Information](#)]

Note that not all Indigenous sites may be listed.

| Name | State | Status |
|--------------------------------------|-------|------------|
| Natural | | |
| Jardine River Swamps | QLD | Registered |
| North East Cape York | QLD | Registered |

Invasive Species [[Resource Information](#)]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

| Name | Status | Type of Presence |
|--|--------|--|
| Frogs | | |
| Bufo marinus Cane Toad [1772] | | Species or species habitat likely to occur within area |
| Rhinella marina Cane Toad [83218] | | Species or species habitat likely to occur within area |
| Mammals | | |
| Bos taurus Domestic Cattle [16] | | Species or species habitat likely to occur within area |
| Canis lupus familiaris Domestic Dog [82654] | | Species or species habitat likely to occur within area |
| Felis catus Cat, House Cat, Domestic Cat [19] | | Species or species habitat likely to occur within area |

| Name | Status | Type of Presence |
|--|--------|--|
| Sus scrofa Pig [6] | | Species or species habitat likely to occur within area |
| Plants | | |
| Andropogon gayanus Gamba Grass [66895] | | Species or species habitat likely to occur within area |
| Reptiles | | |
| Lepidodactylus lugubris Mourning Gecko [1712] | | Species or species habitat likely to occur within area |

| Nationally Important Wetlands | [Resource Information] |
|---|--------------------------|
| Name | State |
| Jardine River Wetlands Aggregation | QLD |
| Skardon River - Cotterell River Aggregation | QLD |

Key Ecological Features (Marine) [Resource Information]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

| Name | Region |
|----------------------------------|--------|
| Gulf of Carpentaria coastal zone | North |

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Coordinates

-11.246 142.158

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Department of Environment, Climate Change and Water, New South Wales](#)
- [-Department of Sustainability and Environment, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment and Natural Resources, South Australia](#)
- [-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts](#)
- [-Environmental and Resource Management, Queensland](#)
- [-Department of Environment and Conservation, Western Australia](#)
- [-Department of the Environment, Climate Change, Energy and Water](#)
- [-Birds Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-SA Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Atherton and Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [-State Forests of NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

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Appendix C – National Heritage List

Cape York Peninsula, Peninsula Developmental Rd, Weipa, QLD, Australia

| | |
|---------------|------------------------|
| List | National Heritage List |
| Class | Natural |
| Legal Status | Nominated place |
| Place ID | 105968 |
| Place File No | 4/06/270/0073 |

Nominator's Summary Statement of Significance

Cape York Peninsula is one of Australia's most outstanding conservation areas, which because of its vast extent (covering an area of some 137,000 square kilometres), low population pressure, relative integrity and rich diversity of ecosystems, provides an outstanding opportunity to better understand much of our evolution.

The Australian Heritage Assessment Tool Project has listed the Iron and McIlwraith Ranges in Cape York in a list of the richest and most unique terrestrial hotspots in Australia (ANHAT 2004).

In 1982 the IUCN described the flora and fauna of Cape York Peninsula as of international significance because of its biogeographic and evolutionary relationship to New Guinea. Conservation International also considers Cape York to be a region of immense national and international conservation value, classifying it as one of the earth's last remaining major tropical wilderness areas (Mittermeier et al. 2005), and as a globally important hotspot with extensive endemic biodiversity (Mittermeier et al. 2004).

Abrahams and his colleagues (1995) commented that: "Cape York Peninsula is one of Australia's key conservation areas. Its dune fields and deltaic fan deposits are amongst the best developed in the world, while the biogeography and evolutionary relationships of the plants and animals to the biota of New Guinea provides important insights into the evolutionary history of Australasia. In a national context, Cape York Peninsula is a key area for wilderness, heath land, rainforest, riparian, and wetland conservation. The Peninsula also contains some of Australia's highest concentrations of rare and threatened species as well as restricted endemics. It is also an important area for species richness, and is particularly rich for invertebrates, freshwater fish, mangroves, seagrass and orchids. The combination and extent of these features of national significance result in much of the study area being of international conservation significance.

"Features of conservation value are not restricted or concentrated in a few areas but are generally widespread and occur over most of the Peninsula.

"Over 80% of the Peninsula has been identified as having nature conservation significance for at least one natural heritage attribute. The vastness and importance of this area, together with the widespread nature of individual values, necessitates a regional consideration of natural heritage values in land use planning, rather than a focus on a few key areas".

Mackey and his colleagues (2001) are equally positive about the special nature of Cape York Peninsula. In their introduction to an assessment of the national heritage significance of Cape York they comment that the area is special because:

"At the global and most general scale, Cape York Peninsula contains three globally significant bioclimatic domains, and a wide range of ecosystems. Rainforests, open forests, woodlands, shrub lands, heaths, sedge lands, grasslands, mangroves, seagrass, coral reefs and salt marsh systems are well represented and relatively undisturbed by modern technology. It is this retained integrity of natural systems and processes, over such a vast area across entire watersheds, that gives Cape York its unique character and global environmental significance. Australia, alone among nations with large areas of monsoonal wet/dry tropical environments, has an opportunity to avoid the mistakes of ill-advised development with attendant land and groundwater degradation, water pollution and biodiversity loss."

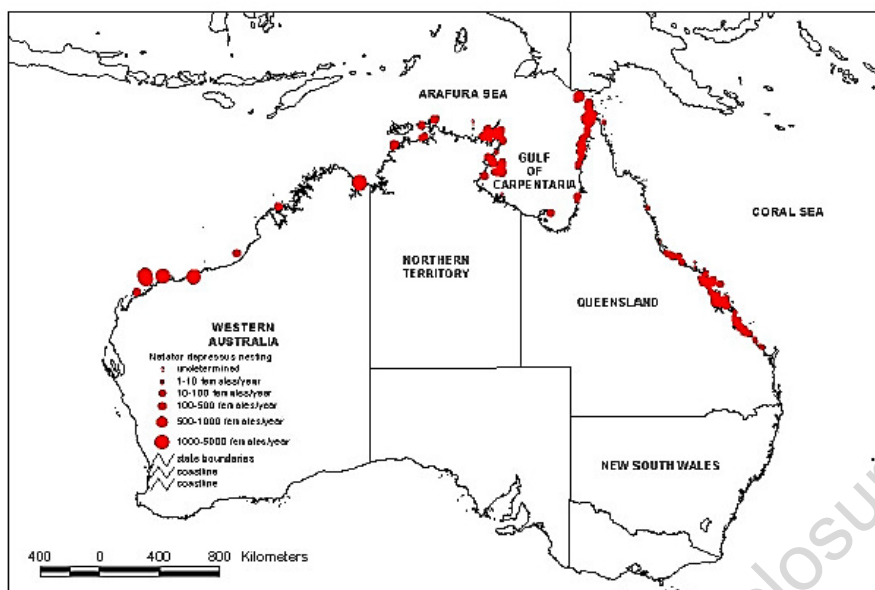
Cape York is indeed one of the last great wilderness areas in the world, and one of outstanding ecological and cultural significance.

Further information can be found at at <http://www.environment.gov.au/cgi-bin/ahdb/search.pl>.

Appendix D Additional data on threatened turtles

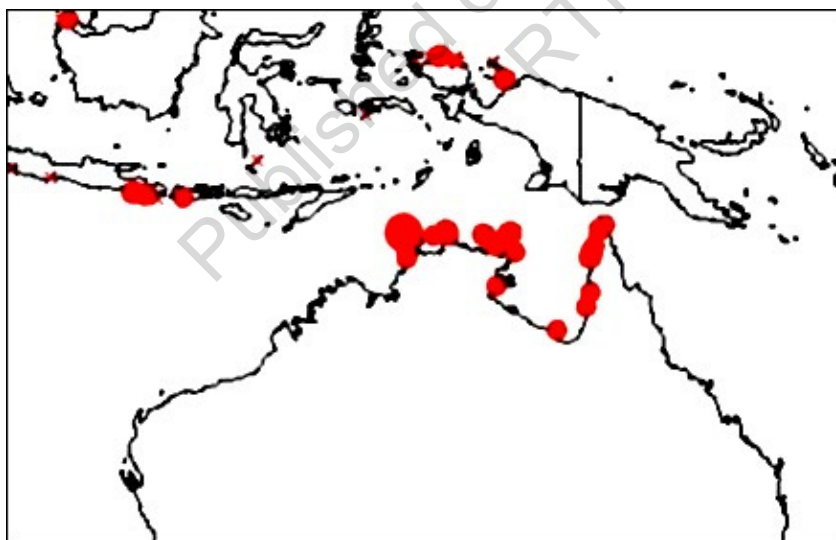
Collated by Bruce Wannan (EHP) 2013

Flatback Turtle – data for this species is based on Limpus (2007)⁵. The species has restricted Australia/near Asian distribution and all recorded nesting sites are in Australia.



Distribution of *Natator depressus* nesting beaches. The data are incomplete for the western part of Arnhem Land and Western Australia (Limpus 2007).

Olive Ridley - data for this species is based on Limpus (2008)⁶. *Lepidochelys olivacea* has a worldwide circumtropical distribution, including northern Australia. While the Australian nesting distribution and population size remains to be fully evaluated it appears to be the largest breeding population remaining in the southeast Asia–western Pacific region

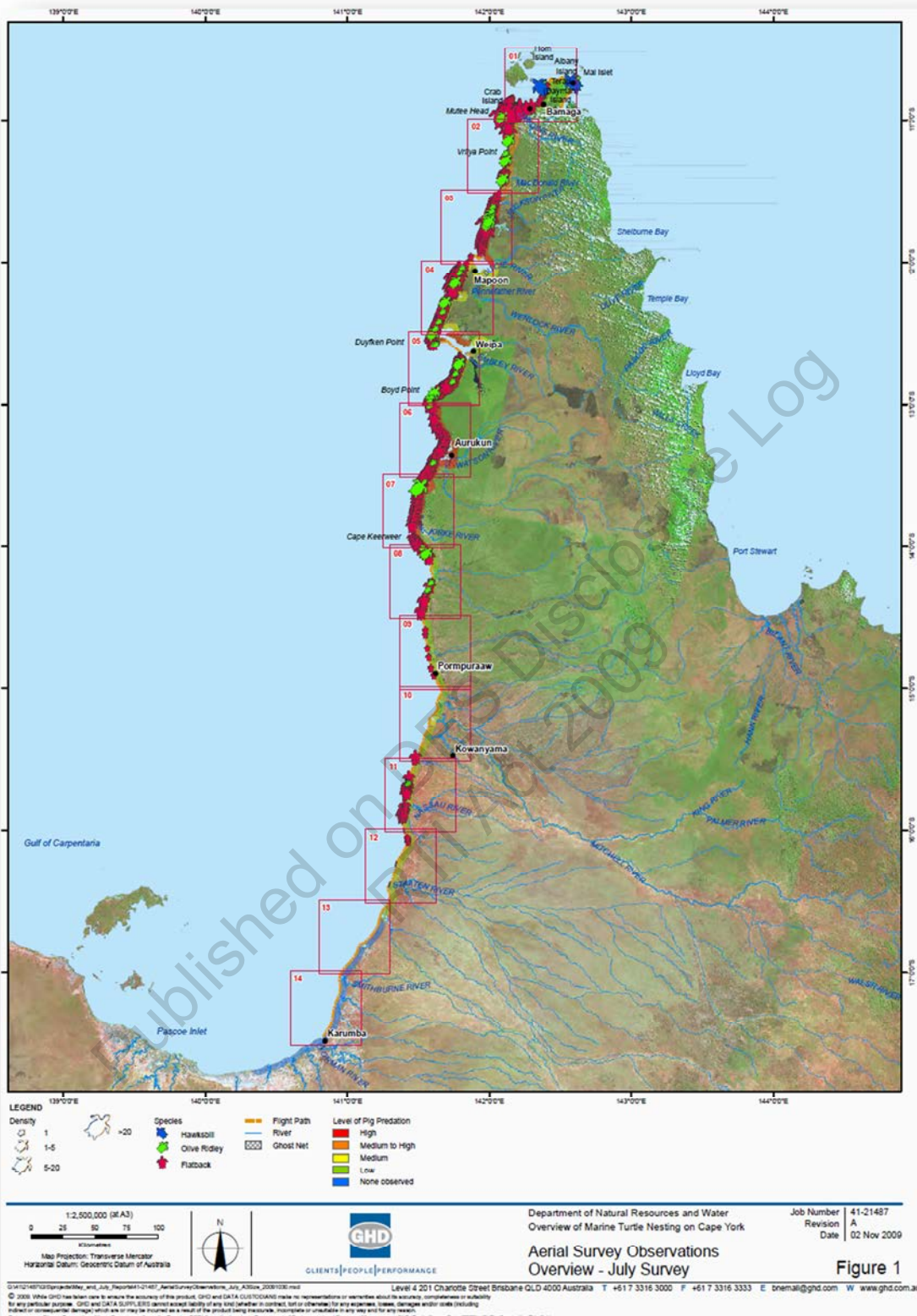


Distribution of *Lepidochelys olivacea* breeding sites in southeast Asia–western Pacific region (Limpus 2008).

⁵ Limpus C. 2007. A Biological Review of Australian Marine Turtle Species. 5. Flatback turtle, *Natator depressus* (Garman). Queensland Environmental Protection Agency, Brisbane.

⁶ Limpus C. 2008. A Biological Review of Australian Marine Turtle Species. 4. Olive Ridley turtle *Lepidochelys olivacea* (Eschscholtz). Queensland Environmental Protection Agency, Brisbane

The *Caring for Our Country* report on *Marine Turtle Nesting* (Groom 2010)⁷ identified nesting sites adjacent to the study area. The report identified the occurrence of numerous nesting sites of Olive Ridley and Flatback turtles, and one isolated nesting site of Hawksbill turtle (see Figure below).



Observations of turtle nesting July 2010.

⁷ Groom 2010 Report for Caring for Country – Overview of Marine Turtle Nesting on Western Cape York March 2010. Consultancy report by Gutteridge Haskins & Davey.

Appendix E - Summary of REs within LUMP area (200m buffer)

| RE | RTAW Land Unit | Area (ha) | % of terrestrial area | Biodiversity status | Extent ¹ | Extent Reserved | Description | Sub region | Special values/ comments | Wetland |
|---------|-----------------------------|-----------|-----------------------|-----------------------|--|-----------------|--|----------------------------------|--|--|
| 3.1.1a | 3d S ² | 3,571.94 | 2.4% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | Medium | Closed forest of <i>Rhizophora stylosa</i> +/- <i>Bruguiera gymnorrhiza</i> . Occurs as outer mangroves | 7, 3, 4, 1, 9, 2, (6) | Highest structural and floristic development of mangroves in Australia. Important habitat for estuarine crocodiles, and vulnerable butterfly <i>Hypochrysops apollo</i> and two other jewel butterflies <i>H. narcissus</i> and <i>H. apelles</i> . 3.1.1: Wenlock, Ducie, Pascoe and McIvor Rivers. Lines tidal rivers. Vegetation communities | Estuarine wetlands (e.g. mangroves). |
| 3.1.3 | 6c S ² | 3,060.31 | 2.1% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | Medium | <i>Cerriops tagal</i> +/- <i>Avicennia marina</i> low closed forest. Extensive on intertidal areas | 7, 4, 9, 1, 2 | | Estuarine wetlands (e.g. mangroves). |
| 3.1.5 | 12e S ² | 217.59 | 0.1% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | Medium | <i>Sporobolus virginicus</i> closed tussock grassland. Occurs on coastal plains | 9, 7, 8, (3), (6) | Provides estuarine wetland habitat. Lakefield and on west coast. Scattered clumps of <i>Parkinsonia aculeata</i> * (<i>parkinsonia</i>) shrubs may occur in some areas. | Estuarine wetlands (e.g. mangroves). |
| 3.1.6 | 12e S ² | 1,269.51 | 0.9% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | High | Sparse herbland or bare salt pans. Associated with salt plains and saline flats | 9, 7, 4, 2, 6, (3), (1) | Provides estuarine wetland habitat. Great Barrier Reef islands. A variant is <i>Sesuvium portulacastrum</i> closed-herblands. <i>Sarcocornia quinqueflora</i> subsp. <i>quinqueflora</i> and <i>Suaeda australis</i> are frequent subdominant species. | Estuarine wetlands (e.g. mangroves). |
| 3.2.1a | 3a S ² | 0.81 | 0.0% | Of concern | Extent < 10,000 ha & >30% of pre-clear area | High | Evergreen notophyll vine forest on coastal dunes and beach ridges | 1, 2, 4, 6 | High numbers of endemic plant species. The vulnerable species <i>Gardenia psidioides</i> and <i>Myrmecodia beccarii</i> and near threatened species <i>Archidendron hirsutum</i> , <i>Cryptocarya claudiana</i> and <i>Syzygium buettnerianum</i> occur in this ecosystem. | |
| 3.2.2a | 3a S ² | 23.05 | 0.0% | Of concern | Extent > 10,000 ha & >30% of pre-clear area. | Low | Semi-deciduous vine thicket on coastal dunes and beach ridges | 9, 7, 4, (3) | 3.2.2: West coast of bioregion and Torres Strait. Areas near settlements and road access are degraded by weeds such as rubber vine and <i>calotropis</i> . High diversity of vascular plants, many with restricted distributions. 3.2.2b: This vegetation community supports the vulnerable species <i>Dendrobium bigibbum</i> (Cooktown Orchid) and <i>Psydrax reticulata</i> . | |
| 3.2.3 | 5a S ² | 25.58 | 0.0% | Of concern | Extent < 10,000 ha & >30% of pre-clear area | Low | <i>Melaleuca dealbata</i> +/- <i>Acacia crassicaarpa</i> open forest. dune swales on the west coast | 9, 7, 4, 1, (6), (3) | West coast of the bioregion and Muralag Is. and Moa Is. In the Torres St. The alien scandent shrub, <i>Cryptostegia grandiflora</i> (rubber vine) was present at all sites sampled. | Palustrine wetland (e.g. vegetated swamp). |
| 3.2.5a | 7a S ² | 79.62 | 0.1% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | Low | <i>Acacia crassicaarpa</i> +/- <i>Syzygium suborbiculare</i> +/- <i>Parinari nonda</i> woodland. On beach ridges | 9, 7, 4, (6), (2), (8), (3), (1) | 3.2.5: West coast and Torres Strait. 3.2.5a: Most extensive on the west coast. 3.2.5b: Torres Strait. 3.2.5c: Western islands of Torres Strait. | |
| 3.2.6a | 5c S ² | 0.35 | 0.0% | Of concern | Extent < 10,000 ha & >30% of pre-clear area | Low | <i>Casuarina equisetifolia</i> woodland. Occurs on foredunes | 9, 7, 3, 4, (6), (2) | 3.2.6: Widely distributed type. Also occurs in other coastal bioregions. Widely distributed type. Also occurs in other coastal bioregions. | |
| 3.2.10c | 5a S ² | 117.30 | 0.1% | Of concern | Extent > 10,000 ha & >30% of pre-clear area. | High | <i>Eucalyptus tetrodonta</i> and <i>Corymbia clarksoniana</i> +/- <i>E. brassiana</i> or <i>Erythrophleum chlorostachys</i> woodland on stabilised dunes | 7, 2, 9, 1, (6), (8), (4) | 3.2.10a: Starke Coastal Plain. 3.2.10b: South east coast of bioregion 3.2.10c: Western coast of Cape York Peninsula | |
| 3.2.13 | Not recorded in RTA Table 3 | 14.58 | 0.0% | Of concern | Extent < 10,000 ha & >30% of pre-clear area | High | Evergreen notophyll vine forest on beach ridges on the east coast | 9, 6, 4, (1) | East coast. Frequently heavily used by cattle and feral horses. The weedy introduced plant <i>Hyptis suaveolens</i> * (<i>hyptis</i>) is common in the ground layer. | |

| RE | RTAW Land Unit | Area (ha) | % of terrestrial area | Biodiversity status | Extent ¹ | Extent Reserved | Description | Sub region | Special values/ comments | Wetland |
|---------|---------------------------------|-----------|-----------------------|-----------------------|--|-------------------|--|---------------------------|---|--|
| 3.2.25 | 12c S ² | 117.26 | 0.1% | Of concern | Extent < 10,000 ha & >30% of pre-clear area | High | Sparse hermland of mixed herbaceous species on foredunes and beach ridges | 9, 7, 4, 2, (5), (6) | The naturalised species <i>Chloris inflata</i> * and <i>Dactyloctenium aegyptium</i> * can sometimes be dominant in the ground layer. | |
| 3.3.5a | 4a2 S ² | 130.66 | 0.1% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | High | Evergreen notophyll vine forest. Occurs on alluvia on major watercourses | 7, 4, 1, 2, 6, (5) | High numbers of endemic plants. The vulnerable species <i>Gardenia psidioides</i> , & near threatened species <i>Acacia fleckeri</i> , <i>Archidendron hirsutum</i> , <i>Chrysophyllum roxburghii</i> , <i>Croton brachypus</i> & <i>Litsea macrophylla</i> occur. Important wildlife corridor for closed-forest species. 3.3.5: High usage by cattle, and hence frequently weed-infested. Local disturbance by human camping activities. Stream bank species such as <i>Syzygium tierneyanum</i> , <i>Casuarina cunninghamiana</i> , <i>Eucalyptus tereticornis</i> and <i>Melaleuca leucadendra</i> are frequently present. | Riverine wetland or fringing riverine wetland. |
| 3.3.9 | 4a1 S ² | 1,962.19 | 1.3% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | High | <i>Lophostemon suaveolens</i> open forest. Occurs on streamlines, swamps and alluvial terraces | 7, 8, 4, 1, (6) | | Riverine wetland or fringing riverine wetland. |
| 3.3.10a | No RTA land unit S ² | 26.18 | 0.0% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | High | <i>Melaleuca argentea</i> and/or <i>M. fluviatilis</i> +/- <i>M. leucadendra</i> open forest. Fringes streams and creeks | 1, 6, 8, 7, (5), (4), (2) | Important corridors for wildlife. The near threatened grass species <i>Lepturus xerophilus</i> has been recorded in this ecosystem. 3.3.10a: Weeds such as <i>Passiflora foetida</i> var. <i>foetida</i> , <i>Hyptis suaveolens</i> , <i>Achyranthes aspera</i> , <i>Chamaesyce hirta</i> , <i>Urena lobata</i> and <i>Crotalaria goreensis</i> are often common in the ground layer. <i>Cryptostegia grandiflora</i> is commonly found. | Riverine wetland or fringing riverine wetland. |
| 3.3.12 | 3b S ² | 2.23 | 0.0% | Of concern | Extent < 10,000 ha & >30% of pre-clear area | High | <i>Melaleuca quinquenervia</i> open forest. Associated with scattered coastal swamps | 7, 4, 2, (3), (1), (6) | Scattered throughout the bioregion. | Palustrine wetland (e.g. vegetated swamp). |
| 3.3.14a | 5j4 S ² | 1,739.26 | 1.2% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | High | <i>Melaleuca saligna</i> +/- <i>M. viridiflora</i> , <i>Lophostemon suaveolens</i> woodland on drainage swamps | 7, 8, 6, 4, (9), (2) | 3.3.14a: Found throughout bioregion. 3.3.14b: This vegetation community often occurs in patches too small to be mappable. | Palustrine wetland (e.g. vegetated swamp). |
| 3.3.22a | 5e S ² | 142.80 | 0.1% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | High | <i>Corymbia clarksoniana</i> or <i>C. novoguineensis</i> woodland on alluvial and erosional plains | 7, 4, 1, 8, 6, 2, (3) | 3.3.22a: Holroyd Plain, Weipa Plateau, Olive-Pascoe Lowlands and Torres Strait. 3.3.22b: South east of the bioregion Soils are alluvial sediments but are generally very sandy | Floodplain (other than floodplain wetlands). |
| 3.3.32 | 7b S ² | 2.00 | 0.0% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | Low | <i>Melaleuca viridiflora</i> +/- <i>M. saligna</i> woodland in sinkholes and drainage depressions | 8, (7) | Predominantly in the western Peninsula. | Palustrine wetland (e.g. vegetated swamp). |
| 3.3.39 | No RTA land unit S ² | 0.86 | 0.0% | Of concern | Extent < 10,000 ha & >30% of pre-clear area | No representation | Semi-deciduous microphyll vine forest +/- <i>Melaleuca</i> spp. Associated with sinkholes | 7, (4) | Batavia Downs area. | Palustrine wetland (e.g. vegetated swamp). |
| 3.3.49b | 5g S ² | 3,685.85 | 2.5% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | High | <i>Melaleuca viridiflora</i> +/- <i>Petalostigma pubescens</i> low open woodland on low plains | 8, 6, 7, 1, (4) | The near threatened species <i>Heterachne baileyi</i> occurs in this ecosystem. 3.3.49: Widely distributed on floodplains, and extends into adjacent Gulf Plains bioregion 3.3.49b: This unit is restricted to those parts of the mapped unit no longer subject to inundation or saturation in the wet season. | |
| 3.3.60a | No RTA land unit S ² | 1,722.57 | 1.2% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | High | <i>Themeda arguens</i> , <i>Dichanthium sericeum</i> closed tussock grassland on | 9, 6, 7, 4 | 3.3.60: East and west coast. 3.3.60a: East and west coast. 3.3.60b: West coast. Habitat for the endangered golden-shouldered parrot <i>Psephotus chrysopterygius</i> . | Floodplain (other than floodplain) |

| RE | RTAW Land Unit | Area (ha) | % of terrestrial area | Biodiversity status | Extent ¹ | Extent Reserved | Description | Sub region | Special values/ comments | Wetland |
|----------|---------------------------------|-----------|-----------------------|-----------------------|---|-------------------|---|---------------------------|---|--|
| 3.3.60b | 12d S ² | 125.46 | 0.1% | | | | marine plains | | | wetlands). |
| 3.3.61a | No RTA land unit S ² | 1.69 | 0.0% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | Low | Panicum spp., Fimbristylis spp. tussock grassland on coastal alluvial plains | 8, 9, 7 | 3.3.61: Especially in the south-west of bioregion. 3.3.61a: Especially in the south-west of bioregion. Differentiated from 3.3.61b by being on coastal cracking clay plains (mostly Qac geology) | Floodplain (other than floodplain wetlands). |
| 3.3.63 | 12b S ² | 1,052.96 | 0.7% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | No representation | Closed sedgeland dominated by Eleocharis dulcis on seasonally flooded marine swamps | 7, 9, 4, (8), (2), (1) | Important wetland habitat. Along west coast. Heavily dug up by feral pigs. | Palustrine wetland (e.g. vegetated swamp). |
| 3.3.64 | No RTA land unit S ² | 2,466.26 | 1.7% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | High | Baloskion tetraphyllum subsp. meostachyum open sedgeland in drainage swamps in dunefields | 4, 7, (2) | High diversity of sedges. 3.3.64: Most extensive in the Jardine Swamps in the north. 3.3.64b: East and north of Cape Flattery. 3.3.64c: Sandstone ranges of the Richardson Uplands. | Palustrine wetland (e.g. vegetated swamp). |
| 3.5.2 | 2b | 92,293.84 | 61.8% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | Low | Eucalyptus tetradonta, Corymbia nesophila tall woodland on deeply weathered plateaus and remnants | 7, 4, 8 | RE 3.5.1 and 3.5.2 represent the maximum structural development of Eucalyptus tetradonta (trees 32-34 m tall) throughout its entire range in tropical Australia. Habitat for squirrel glider Petaurus norfolcensis. Associated with bauxite plateaus. Significant areas near Weipa cleared for bauxite mining. One of the most widespread REs in the bioregion. | |
| 3.5.4 | 3c S ² | 518.22 | 0.3% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | High | Semi-deciduous notophyll vine forest. Occurs as small patches on northern plateaus | 4, 7, 1 | The near threatened species Acacia albizioides, A. fleckeri and Margaritaria indica occur in this ecosystem. 3.5.4: North of bioregion. Great variability in species composition between patches. | |
| 3.5.7x2a | Not recorded in RTA Table 3 | 3,086.25 | 2.1% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | High | Eucalyptus tetradonta +/- Corymbia clarksoniana woodland. Mainly occurs on sand plains | 7, 6, 8, 1 | The vulnerable species Jedda multicaulis occurs in this ecosystem. 3.5.7x2a: Edge of the Weipa plateau and Merluna Plain. 3.5.7x2b: Merluna Plain, Bertieshaugh and east of Weipa. This vegetation community is not consistently mappable | |
| 3.5.10 | Not recorded in RTA Table 3 | 1,257.51 | 0.8% | No concern at present | Extent was > 10,000 ha & >30% of pre-clear area remained. | High | Eucalyptus tetradonta, Corymbia nesophila woodland on sandy gently undulating rises and low hills | 4, 7, 8, 6, 1, (2), (5) | 3.5.10: Widespread. 3.5.10x1: Heathlands | |
| 3.5.10x1 | | 75.38 | 0.1% | | | | | | | |
| 3.5.11 | Not recorded in RTA Table 3 | 3,145.10 | 2.1% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | Low | Eucalyptus tetradonta, Corymbia nesophila woodland on lower slopes of plains and rises | 7, 4, 1, (2), (8) | The near threatened plant species Heterachne baileyi may occur in this community. Predominantly in the central Peninsula. The presence of Eucalyptus leptophleba and Corymbia clarksoniana in the canopy or sub canopy and frequently Melaleuca viridiflora in the sub canopy layer are helpful indicators of 3.5.11. | |
| 3.5.14b | No RTA land unit S ² | 517.80 | 0.3% | No concern at present | Extent was > 10,000 ha & >30% of pre-clear area remained. | High | Melaleuca viridiflora +/- Acacia spp. +/- Asteromyrtus symphyocarpa low woodland on scattered coastal sand plains | 6, 8, 1, 2, (7), (5), (4) | 3.5.14: Widespread across the Peninsula 3.5.14a: Central and northern Peninsula. 3.5.14b: Extensive in subregion 6 3.5.14c: Southern extent of the bioregion. | |
| 3.5.19x3 | No RTA land unit S ² | 78.53 | 0.1% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | High | Asteromyrtus lysicephala, Choriceris tricornis open heath on sand sheets | 4, 1 | 3.5.19x3: Heathlands 3.5.19x4: Northern part of bioregion. Callitris intratropica emergents and Leucopogon sp. shrubs are more frequent on the lowlands than on the McHenry plateau. 3.5.19x7: McHenry Uplands and Richardson Uplands | |
| 3.5.19x4 | | 358.61 | 0.2% | | | | | | | |

| RE | RTAW Land Unit | Area (ha) | % of terrestrial area | Biodiversity status | Extent ¹ | Extent Reserved | Description | Sub region | Special values/ comments | Wetland |
|--------------------|-----------------------------|----------------|-----------------------|-----------------------|--|-------------------|--|--------------------|---|---------|
| 3.5.19x7 | | 144.35 | 0.1% | | | | | | | |
| 3.5.22c | 5e | 1,795.20 | 1.2% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | Medium | Corymbia clarksoniana +/- Erythrophleum chlorostachys +/- Corymbia spp. +/- Eucalyptus spp. woodland on plains | 7, 8, 4, 2, 6, (1) | 3.5.22: Normanby and Kennedy Rivers and western Cape York Peninsula The exotic Hyptis suaveolens & Crotalaria goreensis can dominate the ground layer. 3.5.22c: Normanby and Kennedy Rivers. 3.5.22x2: Western Cape York Peninsula Eucalyptus platyphylla dominates in some low-lying areas but such areas are very limited in extent. This RE was originally listed in Sattler & Williams (1999) as 3.9.3 but has been moved to 3.5.22x2 after re-assessment | |
| 3.5.22x2 | | 3.53 | 0.0% | | | | | | | |
| 3.5.29 | Not recorded in RTA Table 3 | 0.89 | 0.0% | Of concern | Extent > 10,000 ha & >30% of pre-clear area. | High | Sorghum plumosum var. plumosum +/- Themeda arguens closed tussock grassland on erosional plains | 6, (7), (8) | Predominantly in the south-east of bioregion. Significant proportion of this unit has been invaded by Melaleuca viridiflora (3.5.14b & 3.3.50) in the last 30 years. Careful fire management required to maintain these grasslands. | |
| 3.7.3 | 5b S ² | 2263.34 | 1.5% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | No representation | Eucalyptus cullenii +/- E. tetradonta woodland on erosional escarpments and plains | 7, 4 | The near threatened species Acacia ommatosperma occurs in this ecosystem. Occurs on marginally deeper soils that are heavily weathered as well as shallow soils. Ironstone pebbles are a conspicuous feature of this community, indicating deep weathering, though outcrops are not common | |
| 3.7.5a | 5b S ² | 318.64 | 0.2% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | High | Corymbia stockeri, Eucalyptus cullenii woodland on ironstone knolls and erosional surfaces | 7, 4, 8, 1 | The near threatened species Acacia ommatosperma occurs in this ecosystem. 3.7.5: Central Peninsula. 3.7.5b: Cape Weymouth. | |
| 3.9.4a | Not recorded in RTA Table 3 | 116.29 | 0.1% | No concern at present | Extent > 10,000 ha & >30% of pre-clear area. | Medium | Eucalyptus leptophleba +/- Corymbia papuana open woodland on rolling plains | 7, (4) | 3.9.4a: Central Peninsula. Potentially threatened with clearing for more intensive grazing. Widespread. Eucalyptus chlorophylla is occasionally present in this regional ecosystem. Where it occurs, it usually replaces E. leptophleba. | |
| 3.10.1d | Not recorded in RTA Table 3 | 10.24 | 0.0% | Of concern | Extent < 10,000 ha & >30% of pre-clear area | Low | Evergreen mesophyll/notophyll vine forest. Restricted to sandstone gullies | 2, 5, 7 | 3.10.1d: Bauxite plateau edges in the Weipa area Springs associated with this ecosystem are significant for local fauna and near threatened flora species 3.10.1a: High diversity of vascular plants, many with restricted distributions. High frequency of palms. Often receive continuous moisture from permanent springs. | |
| Non-remnant | | 21,735.52 | 14.6% | | | | | | | |
| Total | | 149,278 | 100% | | | | | | | |
| | | | | | | | | | | |
| Estuary | | 4,239.45 | 2.7% of total area | | | | | | | |
| Ocean | | 721.06 | 0.5% of total area | | | | | | | |
| Water | | 193.01 | 0.1% of total area | | | | | | | |
| Grand Total | | 154,432 | | | | | | | | |

Notes: 1 – based on September 2009 extent of remnant vegetation
2 – listed as sensitive vegetation in LUMP

Appendix F Listed threatened species

| Group | Species | Highest status (NCA/ EPBC) | Inshore marine | Estuarine | Mangrove | Mudflat, saltmarsh | Beaches sandspits | Freshwater riverine | Freshwater lac/pal | Acacia/ Astero | Grassland | Littoral woodland | Mel woodland | Euc Woodland | Rainforest | Northern probability | Southern probability | Habitat, Notes |
|--------|------------------------------------|----------------------------|----------------|-----------|----------|--------------------|-------------------|---------------------|--------------------|----------------|-----------|-------------------|--------------|--------------|------------|----------------------|----------------------|--|
| Plants | <i>Cajanus mareebensis</i> | Endangered | | | | | | | | | | | | + | | Low | Low | Terrestrial woodland , Unlikely to occur; nearest record 150 km to SE Mungan Kaanju NP |
| Plants | <i>Streblus pendulinus</i> | Endangered | | | | | | | | | | | | | + | Low | Low | Terrestrial Rainforest, Nearest record Iron Range; not considered threatened by Queensland Herbarium |
| Plants | <i>Hedyotis novoguineensis</i> | Endangered | | | | | + | + | | | | | | | + | Moderate | High | Springs, wetlands Rainforest, Grows in wetlands |
| Plants | <i>Arenga australasica</i> | Vulnerable | | | | | | | | | | | | | + | Moderate | Low | Terrestrial Rainforest, Low probability, recorded near Cape York & Iron Range |
| Plants | <i>Calophyllum bicolor</i> | Vulnerable | | | | | | | | | | | | | + | Moderate | Recorded | Springs, wetlands Rainforest, Recorded at Unigan |
| Plants | <i>Combretum trifoliatum</i> | Vulnerable | | | | | | | | | | | | | + | Low | Moderate | Gallery rainforest Rainforest, |
| Plants | <i>Dendrobium bigibbum</i> | Vulnerable | | | | | | | + | | | | | | + | High | Recorded | Terrestrial, rocks, littoral areas Rainforest, Rainforest on laterite and in coastal areas (BRI records); likely common in suitable habitats. LUMP suggests REs 3.1.1, 3.2.1, 3.2.2, 3.3.5, 3.5.4. trees and rocks with moderate light intensity in coastal scrub, stream bank vegetation, monsoon thickets, gullies in open forest and woodland where fire cannot penetrate |
| Plants | <i>Dendrobium carronii</i> | Vulnerable | | | | | | | | | | | + | | | High | Moderate | Terrestrial, wetlands, woodland, High probability in northern area, in swampy areas. in stunted open forest, particularly adjacent to low-lying areas that are subject to periodic inundation on <i>Melaleuca viridiflora</i> , <i>Xanthostemon crenulatus</i> , <i>Lophostemon suaveolens</i> |
| Plants | <i>Dendrobium johannis</i> | Vulnerable | | | | | | | | | | + | + | | + | High | High | Terrestrial, open woodland, close to swamps and in pockets of monsoon forests Rainforest, woodland, High probability in Melaleuca swamps |
| Plants | <i>Eleocharis retroflexa</i> | Vulnerable | | | | | + | | | | | | | | + | Moderate | Low | wetlands, riverine, Rainforest, Moderate probability in northern lease, Margin of watercourses |
| Plants | <i>Solanum dunalianum</i> | Vulnerable | | | | | | | | | | | + | | + | Moderate | Recorded | Terrestrial, rainforest & melaleuca woodland , Recorded in Regional Ecosystem 3.5.4 |
| Plants | <i>Sarcobolus vittatus</i> | Vulnerable | | | + | | | | | | | | | | + | Low | Recorded | Mangroves, terrestrial Rainforest,, Recorded at Unigan |
| Plants | <i>Spathoglottis plicata</i> | Vulnerable | | | | | | + | | | | | + | | + | Moderate | Recorded | Terrestrial, wetlands, springs, Rainforest, woodland , Recorded in wetland south of airstrip |
| Plants | <i>Acacia ommatosperma</i> | NT | | | | | | | | | | | | | + | High | Recorded | Terrestrial, Woodland, |
| Plants | <i>Arthrargrostis clarksoniana</i> | NT | | | | | | | | | | | | | + | Moderate | Moderate | Terrestrial, woodland , |
| Plants | <i>Crudia abbreviata</i> | NT | | | | | | | | | | | | | + | Moderate | High | Terrestrial Rainforest, Gallery rf |
| Plants | <i>Dallwatsonia felliana</i> | NT | | | | | | + | | | | | + | | | High | Low | wetlands, terrestrial, woodland , Melaleuca woodland, Fringe and bank of a permanent freshwater lagoon. |

| Group | Species | Highest status (NCA/EPBC) | Inshore marine | Estuarine | Mangrove | Mudflat, saltmarsh | Beaches sandspits | Freshwater riverine | Freshwater lac/pal | Acacia/ Astero | Grassland | Littoral woodland | Mel woodland | Euc Woodland | Rainforest | Northern probability | Southern probability | Habitat, Notes |
|----------|--|---------------------------|----------------|-----------|----------|--------------------|-------------------|---------------------|--------------------|----------------|-----------|-------------------|--------------|--------------|------------|----------------------|----------------------|--|
| Plants | <i>Eremochloa ciliaris</i> | NT | | | | | | | + | | | | + | | | High | Moderate | riverine, wetlands, woodland, Mel shrubland flooded depression, Melaleuca viridiflora woodland with Banksia dentata and sedges, banks of Eliot Creek |
| Plants | <i>Habenaria hymenophylla</i> | NT | | | | | | | | | | | | | + | Moderate | Recorded | Terrestrial rainforest, |
| Plants | <i>Heterachne baileyi</i> | NT | | | | | | | | | | | | | + | Moderate | Very high | Terrestrial woodland , |
| Plants | <i>Hoya revoluta</i> | NT | | | | | | | | | | | | | + | Low | High | Terrestrial Rainforest, |
| Plants | <i>Lepturus geminatus</i> | NT | | | | | + | | | | | + | | | + | Moderate | Very high | Littoral sandy areas, rainforest, |
| Plants | <i>Lindsaea walkerae</i> | NT | | | | | | | + | | | | | | + | High | Very high | wetlands, riverine, springs, rainforest, |
| Plants | <i>Lycopodiella limosa</i> | NT | | | | | | | + | + | | | + | | | Moderate | Low | wetland, sedgeland, springs, shrubland, heath, |
| Plants | <i>Paspalum multinodum</i> | NT | | | | + | + | | | | | + | | | | High | High | wetland, near mangroves, samphire, littoral, grassland , |
| Plants | <i>Schoenus scabripes</i> | NT | | | | | | | + | + | | | | | | Moderate | Low | wetlands, sedgeland, Jardine swamp sedgeland |
| Fish | <i>Glyphis glyphis</i> (Speartooth shark) | Critically Endangered | | + | | | | + | | | | | | | | Low | Recorded | Estuarine to freshwater aquatic, Recorded from Pt Musgrave (1) and Wenlock River. Low prob from north due to absence of extensive estuarine areas |
| Fish | <i>Pristis clavata</i> (Dwarf sawfish) | Vulnerable | + | + | | | | | | | | | | | | Low | Recorded | Marine, coastal waters and estuarine habitats, High probability, record from Mission River & Pine River, Low prob from north due to absence of extensive estuarine areas |
| Fish | <i>Pristis microdon</i> (Freshwater sawfish) | Vulnerable | | + | | | | + | | | | | | | | Low | Recorded | Freshwater rivers, upper reaches estuarine, Recorded Port Musgrave, Embley River, Wenlock River. Low prob from north due to absence of extensive estuarine areas |
| Fish | <i>Pristis zijsron</i> (Green sawfish) | Vulnerable | + | + | | | | | | | | | | | | Low | Recorded | Marine waters and estuaries, Recorded Port Musgrave, Embley River, Mission River. Low prob from north due to absence of extensive estuarine areas |
| Reptiles | <i>Caretta caretta</i> (Loggerhead turtle) | Endangered | + | + | | | + | | | | | | | | | Moderate | Moderate | Marine, estuarine and shore areas, Present in waters but not breeding Limpus 2008a |
| Reptiles | <i>Crocodylus porosus</i> | Vulnerable | + | + | + | | + | | | | | | | | | Very high | Recorded | Riverine, estuarine and shore areas, Recorded |
| Reptiles | <i>Dermochelys coriacea</i> (Leatherback turtle) | Endangered | + | + | | | + | | | | | | | | | Moderate | Moderate | Marine, estuarine and shore areas, Present in waters but not nesting Limpus 2009 |
| Reptiles | <i>Chelonia mydas</i> (Green turtle) | Vulnerable | + | + | | | + | | | | | | | | | Low | Low | Marine, estuarine and shore areas, Present (2) but not nesting |

| Group | Species | Highest status (NCA/EPBC) | | | | | | | | | | | | | | Northern probability | Southern probability | Habitat, Notes | | | |
|--------------|---|---------------------------|----------------|-----------|----------|--------------------|-------------------|---------------------|--------------------|----------------|-----------|-------------------|--------------|--------------|------------|----------------------|----------------------|----------------|-----------|-----------|--|
| | | | Inshore marine | Estuarine | Mangrove | Mudflat, saltmarsh | Beaches sandspits | Freshwater riverine | Freshwater lac/pal | Acacia/ Astero | Grassland | Littoral woodland | Mel woodland | Euc Woodland | Rainforest | | | | | | |
| Reptiles | <i>Egernia rugosa</i> (Yakka skink) | Vulnerable | | | | | | | | | | | | | | | + | | Moderate | Moderate | Terrestrial, Open Woodland , Moderate probability, records from lower Archer River |
| Reptiles | <i>Eretmochelys imbricata</i> (Hawksbill turtle) | Vulnerable | + | + | | | + | | | | | | | | | | | | Moderate | Moderate | Marine, estuarine and shore areas, Recorded with nests |
| Reptiles | <i>Lepidochelys olivacea</i> (Olive ridley turtle) | Vulnerable | + | + | | | + | | | | | | | | | | | | Recorded | Recorded | Marine, estuarine and shore areas, Recorded (2) Groom 2010, Limpus 2007 & 2008 |
| Reptiles | <i>Natator depressus</i> (Flatback turtle) | Vulnerable | + | + | | | + | | | | | | | | | | | | Recorded | Recorded | Marine, estuarine and shore areas, Recorded (2) Groom 2010, Limpus 2007 & 2008 |
| Reptiles | <i>Acanthophis antarcticus</i> (Common Death Adder) | NT | | | | | | | | | | | | | | | | + | Very low | Very low | woodland , Controversial single record from Jardine River 1940 |
| Reptiles | <i>Antaioserpens warro</i> (Robust Burrowing Snake) | NT | | | | | | | | | | | | | | | | + | Very high | Very high | woodland , |
| Reptiles | <i>Emydura subglobosa subglobosa</i> (Jardine River Turtle) | NT | | | | | | + | + | | | | | | | | | | Very high | Low | riverine, wetlands, sedgeland, water, lagoons, palustrine wetland, 3.3.66, 3.3.64, |
| Reptiles | <i>Lepidodactylus pumilus</i> | NT | | | | | | | | | | | | | | | | + | High | Moderate | Rainforest, woodland , mangrove close to coast |
| Birds | <i>Erythrura gouldiae</i> (Gouldian Finch) | Endangered | | | | | | | | | | | | | | | | + | Low | Low | Terrestrial, woodland, grassland , Low probability, Records from Cape York Peninsula 300km to south |
| Birds | <i>Erythrotriorchis radiatus</i> (Red goshawk) | Endangered | | | | | | | + | | | | | | | | | + | High | Recorded | Terrestrial, woodland with <i>Eucalyptus tetradonta</i> , & <i>Corymbia</i> spp. or paperbarks <i>Melaleuca</i> spp., Present, nests within 1 kilometre of streams, rivers |
| Birds | <i>Psephotus chrysopterygius</i> (Antbed Parrot) | Endangered | | | | | | | | | | | | | | | | + | Low | Low | Terrestrial, open woodland , Very low probability of occurrence; records from further south, |
| Birds | <i>Sternula albifrons</i> (Little Tern) | Endangered | | | | | | + | + | | | | | | | | | | High | Recorded | beaches, sandy spits near estuaries and freshwater lakes, |
| Birds | <i>Esacus magnirostris</i> (Beach Stone-curlew) | Vulnerable | | | | | | + | + | | | | | | | | | + | Recorded | Recorded | beaches, sandy spits near estuaries, Recorded by Wildnet |
| Birds | <i>Tyto novaehollandiae</i> | Vulnerable | | | | | | | | | | | | | | | | + | Moderate | Moderate | Woodland, grassland, nest in old growth eucalypts, record from Aurukun |

| Group | Species | Highest status (NCA/EPBC) | Inshore marine | Estuarine | Mangrove | Mudflat, saltmarsh | Beaches sandspits | Freshwater riverine | Freshwater lac/pal | Acacia/ Astero | Grassland | Littoral woodland | Mel woodland | Euc Woodland | Rainforest | Northern probability | Southern probability | Habitat, Notes | |
|--------------|---|---------------------------|----------------|-----------|----------|--------------------|-------------------|---------------------|--------------------|----------------|-----------|-------------------|--------------|--------------|------------|----------------------|----------------------|---|---|
| | kimberli (Masked owl) | | | | | | | | | | | | | | | | | | |
| Birds | Accipiter novaehollandiae (Grey Goshawk) | NT | | | | | | | | | | | | | + | Moderate | Recorded | Rainforest, woodland creeklines, Rainforest, mature forest and tall woodland (including riparian and margins) as well as swamp forest (e.g. Melaleuca, Leptospermum); with rainfall >700mm p.a. (Marchant & Higgins 1993; Burton et al. 1994; Pizzey & Knight 1997). | |
| Birds | Aerodramus terraereginae (Australian Swiftlet) | NT | | | | | | | | | | | | | + | Moderate | Recorded | airspace above rainforest, caves, boulders, nest in rocky, cave areas under bridges | |
| Birds | Cisticola juncidis normani Zitting Cisticola (Normanton subsp.) | NT | | | + | + | | | | | + | | | | + | Low | Very high | Grassland, saltmarsh, samphire, littoral, woodland, mangroves, wetland, | |
| Birds | Ephippiorhynchus asiaticus (Black-necked Stork) | NT | | + | + | + | + | + | + | | | | | | | Recorded | Recorded | wetlands, mangroves, mudflats, grassland, sedgeland, In tropical and warm-temperature terrestrial wetlands, estuarine and littoral habitats, and occasionally grassland and wooded lands. Forage in fresh or saline waters up to 0.5m deep. Mainly open fresh waters; extensive sheets of shallow water over grassland or sedgeland; shallow swamps with short emergent vegetation and abundant aquatic flora; and permanent billabongs and pools on floodplains. Small artificial waterbodies used, especially in arid and semi-arid regions, where they constitute the only reliable water supply. (Marchant & Higgins, 1990) | |
| Birds | Haematopus fuliginosus (Sooty Oystercatcher) | NT | | | | + | + | | + | | | | | | | Very high | Recorded | f/w wetlands, intertidal, seashores, tidal wetlands, sandspits, mudflats, occurs in small groups - large flocks? | |
| Birds | Lophoictinia isura (Square-tailed Kite) | NT | | | | | | | | | + | | | | + | Very high | Recorded | woodland, heathlands, grassland, low densities scattered occurrences, | |
| Birds | Nettapus coromandelianus (Cotton Pygmy-goose) | NT | | | | | | | + | | | | | | | High | Recorded | wetlands, fw lakes often impoundments, lacustrine, palustrine,, in pairs or small groups | |
| Birds | Ninox rufa meesi Rufous Owl (Cape York subsp.) | NT | | | | | | | | | | | | | + | High | Recorded | rainforest, gallery forests [woodland] , low density due to smaller areas of habitat and prey | |
| Birds | Numenius madagascariensis (Eastern Curlew) | NT | | | | + | + | | | | | + | | | | Very high | Recorded | f/w wetlands, intertidal, seashores, tidal wetlands, sandspits, mudflats, rare fresh lakes, small groups or flocks, larger grous for roosting areas in mangroves or near shore vegetation | |
| Birds | Probosciger aterrimus (Palm Cockatoo) | NT | | | | | | | | | | | | | + | + | Recorded | Recorded | woodland, rainforest, heath, wide ranging across Cape York Peninsula, breeds at margin of rainforests |
| Birds | Tadorna radjah (Radjah Shelduck) | NT | | | | | | + | + | | | | | | | Recorded | Recorded | wetlands, fw lakes often impoundments, lacustrine, palustrine, [mangroves, muddflats], small to large groups | |

| Group | Species | Highest status (NCA/EPBC) | | | | | | | | | | | | | | | | | Northern probability | Southern probability | Habitat, Notes | | | |
|---------|--|---------------------------|---|--|---|---|--|--|--|--|--|--|--|--|--|--|--|--|----------------------|----------------------|----------------|--|-----------|--|
| | | | | | | | | | | | | | | | | | | | | | | Inshore marine | Estuarine | Mangrove |
| Mammals | <i>Saccolaimus saccolaimus nudicluniatus</i> (Bare-rumped Sheath-tail Bat) | Critically Endangered | | | | | | | | | | | | | | | | | + | Low | Low | Terrestrial in <i>Eucalyptus tetrodonta</i> , ?low probability & difficult to sample; records from Northern Territory, Iron Range, Coen; | | |
| Mammals | <i>Balaenoptera musculus</i> (Blue Whale) | Endangered | + | | | | | | | | | | | | | | | | | Very low | Very low | Marine, Very low probability in offshore waters | | |
| Mammals | <i>Dasyurus hallucatus</i> (Northern Quoll) | Endangered | | | | | | | | | | | | | | | | | | + | + | High | High | Terrestrial, woodland, rainforest, rocky areas, High probability of occurrence |
| Mammals | <i>Hipposideros semoni</i> (Semon's Leaf-nosed Bat) | Endangered | | | | | | | | | | | | | | | | | | + | + | Moderate | Moderate | Terrestrial, woodland & rainforest, Poorly known; moderate probability of occurrence, |
| Mammals | <i>Rhinolophus philippinensis</i> (large form) Greater Large-eared Horseshoe Bat | Endangered | | | | | | | | | | | | | | | | | | + | + | Low | Low | Terrestrial, woodland and rainforest, Low probability of occurrence; records from Iron Range south; |
| Mammals | <i>Conilurus penicillatus</i> (Brush-tailed Rabbit-rat) | Vulnerable | | | | | | | | | | | | | | | | | | + | | Low | Low | Terrestrial, open forest, woodland, Low probability, Queensland record from Bentinck Island |
| Mammals | <i>Megaptera novaeangliae</i> (Humpback whale) | Vulnerable | + | | | | | | | | | | | | | | | | | | | Very low | Very low | Marine coastal waters, Very low probability, not known from Gulf of Carpentaria |
| Mammals | <i>Notomys aquilo</i> (Northern Hopping mouse) | Vulnerable | | | | | | | | | | | | | | | | | | + | + | Very low | Very low | Terrestrial, broad range of grassland, shrubland and open forest habitats, typically in sandy substrates in coastal or near-coastal areas (3), Uncertain occurrence, known from Groote Eylandt |
| Mammals | <i>Pteropus conspicillatus</i> (Spectacled Flying-fox) | Vulnerable | | | | | | | | | | | | | | | | | | + | + | Moderate | Low | Terrestrial, rainforest, woodland, Low probability, records from east coast |
| Mammals | <i>Rhincodon typus</i> (Whale shark) | Vulnerable | + | | | | | | | | | | | | | | | | | | | Low | Low | Marine waters, Low probability |
| Mammals | <i>Xeromys myoides</i> (False Water Rat) | Vulnerable | | | + | + | | | | | | | | | | | | | | | | Very low | Very low | Terrestrial-near marine; coastal saltmarsh, mangrove and adjacent freshwater wetland habitats, Uncertain occurrence; records from Northern Territory and east coast |
| Mammals | <i>Macroderma gigas</i> (Ghost Bat) | Vulnerable | | | | | | | | | | | | | | | | | | + | + | Moderate | High | Terrestrial Rainforest, woodland, Recorded at Mapoon - Wildnet |

| Group | Species | Highest status (NCA/EPBC) | Inshore marine | Estuarine | Mangrove | Mudflat, saltmarsh | Beaches sandspits | Freshwater riverine | Freshwater lac/pal | Acacia/ Astero | Grassland | Littoral woodland | Mel woodland | Euc Woodland | Rainforest | Northern probability | Southern probability | Habitat, Notes |
|----------------|--|---------------------------|----------------|-----------|----------|--------------------|-------------------|---------------------|--------------------|----------------|-----------|-------------------|--------------|--------------|------------|----------------------|----------------------|--|
| Mammals | <i>Hipposideros cervinus</i> (Fawn Leaf-nosed Bat) | Vulnerable | | | | | | | | | | | | + | + | High | Moderate | Terrestrial, gallery forests, creeks, woodland, Flies along creek lines, gullies, north & east Cape York Peninsula |
| Mammals | <i>Saccolaimus mixtus</i> (Papuan Sheath-tail Bat) | NT | | | | | | | | + | | | | + | | Recorded | Recorded | woodland, grassland, Tall open forests, open woodlands, gardens, and low along tracks in closed <i>Eucalyptus tetradonta</i> forest (Coles and Lumsden 1993, Churchill 1998). Roosts in caves, tree hollows. High flying sometimes difficult to catch on bat recorders. |
| Mammals | <i>Sousa chinensis</i> (Indopacific Humpback Dolphin) | NT | + | + | | | | | | | | | | | | High | Recorded | marine, coastal inshore, estuarine, rivers, Indo-Pacific humpback dolphins are referred to as an 'inshore' species as they are rarely found more than 1 km off shore, except in Moreton Bay, where they can be found up to 6 km offshore. They are a coastal species, favouring estuaries, but are also found in rivers, and adjacent to open beaches. Their distribution is tropical and subtropical (Bannister et al. 1996). |
| Mammals | <i>Spiloglossus maculatus</i> (Common Spotted Cuscus) | NT | | | | | | | | | | | | + | | Moderate | Recorded | Rainforest, gallery rainforest, Recorded along Wenlock, Rainforest (primary & secondary), occasionally in adjacent riparian (gallery) forests including nipa palms, fresh & saltwater mangroves, paperbarks; also open forest up to 0.5km from rainforest, and mosaics including rainforest regrowth, strand vegetation and coconut plantations; sea level to 820m asl (Flannery 1995; Winter & Leung 1998; Heinsohn 2002a,b). |
| Mammals | <i>Kerivoula/Phoniscus papuensis</i> (Golden-tipped Bat) | NT | | | | | | | | | | | | + | | High | Recorded | Rainforest, creeklines, hard to detect, Coastal forest types ranging from lowland rainforest (Walton et al. 1992) to dry sclerophyll forest with and without a wet sclerophyll understorey (Lunney and Barker 1986, Walton et al. 1992, Schulz and de Oliveira 1995, Eyre et al. 1998). Roosts in trees, caves |
| Mammals | <i>Sminthopsis archeri</i> (Chestnut Dunnart) | NT | | | | | | | | | | | | + | | Very high | Very High | woodland, Hard to sample, low densities. Tall stringybark woodlands/mixed savannah (CYP - <i>Erythrophloeum chorostachys</i> , <i>Eucalyptus nesophila</i> [E. mesophyta]; PNG- <i>Lophostemon suavelolans</i> , <i>Melaleuca cajuputi</i>) with understorey of <i>Parinari nonda</i> , <i>Planchonia careyi</i> , <i>Grevillea parallela</i> and <i>Acacia</i> spp. over grasses (<i>Heteropogon</i> , <i>Imperata</i>); on well-drained red earth soils of laterite-bauxite plateau (Van Dyck 1986, 1998; Flannery 1995). |
| Mammals | <i>Orcaella heinsohni</i> (Australian Snubfin Dolphin) | NT | + | + | | | | | | | | | | | | Very high | Very High | riverine, estuarine and coastal waters., Inhabit riverine, estuarine and coastal waters. (Marsh et al 1989). Recorded Port Musgrave |

1. Stevens, J.D., R.D. Pillans and J. Salini (2005). Conservation Assessment of *Glyphis* sp. A (Speartooth Shark), *Glyphis* sp. C (Northern River Shark), *Pristis microdon* (Freshwater Sawfish) and *Pristis zijsron* (Green Sawfish). CSIRO Marine Research, Hobart, Tasmania.
2. Environment Australia 2003 Recovery Plan for Marine Turtles in Australia - July 2003.
3. Woinarski, J.C.Z., 2004. National Multi-species Recovery Plan for the Carpentarian Antechinus *Pseudantechinus mimulus*, Butler's Dunnart *Sminthopsis butleri* and Northern Hopping-mouse *Notomys aequilo*, 2004 - 2009
4. Limpus 2008a *Caretta caretta*
5. Limpus 2009 *Dermodochelys coriacea*
6. Groom 2010 *Lepidochelys olivacea*

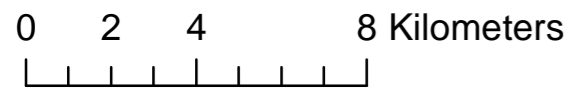
7. Limpus 2007 & *Lepidochelys olivacea*
8. Limpus 2008b Olive Ridley *Lepidochelys olivacea*

Published on DES Disclosure Log
RTI Act 2009

Appendix G - RTAW Quoll Survey 2013

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2013 Northern Quoll Survey Weipa Region Trapping Locations & Trapped Individuals



Legend

- ★ Female Quoll
- Male Quoll
- Trapping Location X 1 Cage
- ✱ Trapping Location X 10 Cages
- Environment Buffer
- Lease Boundary

