

Intended for
Hydro Aluminium Kurri Kurri Pty Ltd

Document type
Final Report

Date
December, 2020

HYDRO ALUMINIUM KURRI KURRI SMELTER DECOMMISSIONING, DEMOLITION AND REMEDICATION BIODIVERSITY MANAGEMENT PLAN

BIODIVERSITY MANAGEMENT PLAN

Ref **318000533**
Document ID **Hydro Kurri Kurri EMP_Appendix I_FINAL_Biodiversity_20201223**
Revision **Final Rev 0**
Date **23/12/2020**
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Description **Ramboll was engaged by Hydro Aluminium Kurri Kurri Pty Ltd to prepare a Remediation Works Environmental Management Plan (RWEMP) to describe how environmental management will be undertaken at the former Hydro Aluminium Kurri Kurri aluminium smelter at Hart Road Loxford, NSW and the surrounding land owned by Hydro. This Biodiversity Management Plan forms a component of the RWEMP.**

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ACRONYMS AND ABBREVIATIONS

BC Act	<i>Biodiversity Conservation Act 2016</i>
BCD	Biodiversity Conservation Divison
BMP	Biodiversity Management Plan
DA	Development Application
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>
Hydro	Hydro Aluminium Kurri Kurri Pty Ltd
LGA	Local Government Area
RWEMP	Remediation Works Environmental Management Plan
SSD	State Significant Development
TSC Act	<i>Threatened Species Conservation Act 1995 (repealed)</i>

GLOSSARY

Council	Cessnock City Council
Department	Department of Planning, Industry and Environment
Hydro	Hydro Aluminium Kurri Kurri Pty Ltd
Hydro Land	The land owned by Hydro Aluminium Kurri Kurri Pty Ltd which includes the Smelter and surrounding land.
Remediation	Remediation of contaminated land and soils at the Smelter and on Hydro Land, including the construction of a Containment Cell as addressed in the State Significant Development application to the Department of Planning and Environment SSD 6666.
The Smelter	The former Hydro Aluminium Kurri Kurri Pty Ltd aluminium smelter at Hart Road, Loxford
Stage 1 Demolition	Demolition of Smelter buildings addressed in the development application to Cessnock City Council 8/2015/399/1
Stage 2 Demolition	Demolition of Smelter buildings, three concrete stacks, a water tower, subsurface structures to 1.5 m below ground surface and operation of a concrete crushing plant addressed in the development application to Cessnock City Council 8/2018/46/1
The Smelter	The former Hydro Aluminium Kurri Kurri Pty Ltd aluminium smelter at Hart Road, Loxford.

1. INTRODUCTION

1.1 Background

This Biodiversity Management Plan (BMP) has been prepared by Ramboll Australia Pty Ltd on behalf of Hydro Aluminium Kurri Kurri Pty Ltd (Hydro) to support the Remediation Works Environmental Management Plan (RWEMP) for the decommissioning, demolition and remediation activities at the former Hydro Aluminium Kurri Kurri Smelter (the Smelter) at Hart Road Loxford and the management of the surrounding land owned by Hydro (the Hydro Land).

1.2 Objectives

The objectives of this BMP are to:

- Outline relevant legislation and guidelines.
- Identify measures to minimise impacts to native Biodiversity within the Hydro Land.
- Identify measures to manage impacts from weeds and vertebrate pests within the Hydro Land.
- Establish the roles and responsibilities of all parties involved in management of Biodiversity.
- Establish supervision, monitoring, auditing and reporting framework for the BMP.

1.3 Purpose and Scope

The purpose of the BMP is to specify procedures for management of Biodiversity related issues and impacts during activities at the Smelter and on the Hydro Land.

The BMP has been developed with reference to the following legislation:

- Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- *Biodiversity Conservation Act 2016* (BC Act)
- *Threatened Species Conservation Act 1995* (TSC Act) (repealed)
- *Native Vegetation Act 2003*
- *Biosecurity Act 2015*
- *Rural Lands Protection Act 1998*
- *Local Land Services Act 2015*

From 25 February 2018, any new application for development consent or modification to an approved development under Part 4 of the EP&A Act is subject to the biodiversity assessment requirements of the *Biodiversity Conservation Act 2016*. The Act repeals the *Threatened Species Conservation Act 1995*, the *Nature Conservation Trust Act 2001* and parts of the *National Parks and Wildlife Act 1974*. The BC Act will therefore apply to the modification of the approved development consents DA 8/2015/399/1 and DA 8/2018/46/1 for the demolition activities.

The TSC Act remains relevant to the State Significant Development (SSD) application for remediation activities only.

It is acknowledged that Hydro requires the retirement of biodiversity credits as agreed by the Biodiversity Conservation Division (BCD) to offset vegetation clearance for the remediation activities under SSD 6666. This agreement is not discussed further in this management plan.

It is also acknowledged that the Containment Cell is required to use native grasses in vegetating the completed capping. This is not addressed in this management plan and will be described in the Containment Cell Management Plan.

This plan relates to the management measures associated with the management and (where required) clearing of existing biodiversity during decommissioning, demolition and remediation activities.

1.4 Regulatory Requirements

A list of the development consent conditions related to Biodiversity management and where they are addressed in this document are outlined in **Table 1-1**.

Table 1-1: Project Approval Conditions

No.	Condition	Location in BMP
SSD 6666		
BIODIVERSITY		
Biodiversity Management Plan		
B42	Prior to clearing for remediation works, the Applicant must prepare a Biodiversity Management Plan (BMP) for the development in consultation with Biodiversity and Conservation Division of the Department to the satisfaction of the Planning Secretary. The BMP must be approved by the Planning Secretary prior to the commencement of clearing for remediation works and must form part of the RWEMP in accordance with Condition C2. The BMP must include measures that would be implemented on site for minimising biodiversity impacts including:	This BMP
B42(a)	pre-clearing surveys;	Table 3-2
B42(b)	supervision during vegetation clearing;	Table 3-2
B42(c)	hygiene protocols, including vehicle wash-down, for all plant machinery; and	Table 3-2
B42(d)	nest box installation and a monitoring strategy to compensate for hollow bearing tree loss.	Table 3-2
B43	The Applicant must:	
B43(a)	not commence vegetation clearing for remediation works until the BMP required by Condition B30 is approved by the Planning Secretary; and	Noted
B43(b)	implement the most recent version of the BMP approved by the Planning Secretary for the duration of the remediation works.	This BMP
Management Plan Requirements		
C1	Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:	
C1(a)	detailed baseline data;	Section 2
C1(b)	details of:	N/A
	(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);	This table and the RWEMP
	(ii) any relevant limits or performance measures and criteria; and	Section 2.2.1.1
	(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	Table 3-2
C1(c)	a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Table 3-2
C1(d)	a program to monitor and report on the:	
	(i) impacts and environmental performance of the development; and	
	(ii) effectiveness of the management measures set out pursuant to paragraph (c) above;	Table 3-2
C1(e)	a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 4.2
C1(f)	a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 4.4
C1(g)	a protocol for managing and reporting any:	N/A
	(i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);	Section 4.2

No.	Condition	Location in BMP
C1(h)	(ii) complaint;	Section 4.3
	(iii) failure to comply with statutory requirements; and	Section 4.2
	a protocol for periodic review of the plan.	Section 4.4
	Note: the Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.	N/A
DA 8/2015/399/1		
	No specific conditions pertaining to Biodiversity	N/A
DA 8/2018/46/1		
9	The Applicant must establish 'no go zones' to ensure that the temporary crushing plant, all machinery, plant and activity is kept at a minimum distance of 40 metres from mapped watercourses, including underground drainage, on the development site.	Table 3-2

2. EXISTING ENVIRONMENT AND POTENTIAL IMPACTS

2.1 Existing Environment

The total area owned by Hydro is approximately five kilometres from north to south and seven kilometres from east to west and includes the Smelter and the Hydro Land. Land uses within the Hydro Land include:

- Rural land (predominantly cattle grazing)
- Rural residences
- Kurri Kurri Speedway
- Kurri Kurri Junior Motorcycle Club
- Native vegetation

Public roads cross the Hydro Land, including the Hunter Expressway, Hart Road, Dickson Road, Bowditch Avenue, Scales Avenue, Dawes Avenue, Horton Road and McGarva Avenue. The South Maitland Railway also passes through the eastern section of the Hydro Land.

The Smelter has been significantly disturbed through construction (including earthworks and filling) and ongoing operation of the Smelter. Native vegetation (comprised of endangered ecological communities (EECs)) is located within the Hydro Land to the north, west and south.

Ecological assessments and surveys have been undertaken since 2014 to support planning proposals and development applications applying to the Smelter and Hydro Land.

2.1.1 Native Flora

The remnant vegetation on the Hydro Land comprises:

- Kurri Sand Swamp Woodland in the Sydney Basin Bioregion
- Lower Hunter Spotted Gum – Ironbark Forest in the Sydney Basin Bioregion
- Parramatta Red Gum - Narrow-leaved Apple - Prickly-leaved Paperbark shrubby woodland in the Cessnock-Kurri Kurri area
- Cabbage Gum-Rough-barked Apple grassy woodland on alluvial floodplains of the lower Hunter
- Forest Red Gum - Grey Gum dry open forest on hills of the lower Hunter Valley, Sydney Basin Bioregion
- Spotted Gum - Red Ironbark - Narrow-leaved Ironbark - Grey Box shrub-grass open forest of the lower Hunter

Kurri Sand Swamp Woodland in the Sydney Basin Bioregion and the Lower Hunter Spotted Gum – Ironbark Forest in the Sydney Basin Bioregion are listed under the (now repealed) TSC Act and EPBC Act as EECs.

Additionally, threatened flora species listed under the TSC Act and the EPBC Act are located within the Hydro Land. **Table 2-1** lists these threatened flora species.

Table 2-1: Threatened Flora Species and Status

Common Name	Scientific Name	TSC Act Status	EPBC Act Status
Parramatta Red Gum	<i>Eucalyptus parramattensis</i>	Vulnerable	Vulnerable
Small-flower Grevillea	<i>Grevillea parviflora</i>	Vulnerable	Vulnerable

Appendix 1 includes plans showing the endangered ecological communities and the recorded locations and habitat for threatened flora species.

2.1.2 Native Fauna

A number of threatened fauna species (as listed under the TSC Act and/or the EPBC Act) have been recorded within the Hydro Land, or their habitat is present within the Hydro Land and there is potential for them to inhabit or utilise the Hydro Land.

Appendix 2 includes a list of recorded and potential threatened and migratory fauna species.

2.1.3 Weed Species

Hydro implements a weed management program to limit the spread and colonisation of terrestrial and aquatic weeds. The weed control class is determined in accordance with the *Biosecurity Act 2015*, which describes the legal control requirements for any weed. Findings from the 2014 Property Management Report (updated to include only those species listed as noxious weeds within the Cessnock and Maitland Local Government Areas (LGA) as of 6 April 2016) are outlined in **Table 2-2**.

- The current list of priority weeds for the Hunter region can be found at <http://weeds.dpi.nsw.gov.au/WeedBiosecurities?AreaId=4>

Table 2-2: Noxious Weeds within the Cessnock and Maitland LGAs

Species	Location	Duty
Green Cestrum	Waterways, banks	Land managers should mitigate the risk of new weeds being introduced to their land. Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment. Land managers reduce impacts from the plant on priority assets.
Paterson's Curse	Throughout cleared former grazing paddocks	Land managers should mitigate the risk of new weeds being introduced to their land. Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment. Land managers reduce impacts from the plant on priority assets.
Salvinia	Swamp Creek and Wentworth Swamp	Land managers should mitigate the risk of new weeds being introduced to their land. Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment. Land managers reduce impacts from the plant on priority assets.
Water Hyacinth	Swamp Creek and Wentworth Swamp	Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. Notify local control authority if found.
Lantana	Waterways, banks	All plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.
Blackberry	Throughout cleared former grazing paddocks	The plant should not be bought, sold, grown, carried or released into the environment. Land managers should mitigate the risk of the plant being introduced to their land. Land managers should mitigate spread from their land. Land managers to reduce impacts from the plant on priority assets.
Pampas Grass	Occasional specimen throughout Hydro Land	The plant should not be bought, sold, grown, carried or released into the environment. Exclusion zone: The plant should be eradicated from the land and the land kept free of the plant. Land managers should mitigate the risk of the plant being introduced to their land. Core infestation area: Land managers should mitigate spread from their land. Land managers to reduce impacts from the plant on priority assets.

2.1.4 Vertebrate Pest Species

Regular inspections of the Hydro Land are undertaken to identify vertebrate pests requiring control measures.

Wild Rabbits, Feral Pigs and Wild Dogs are declared pests throughout NSW through a Pest Control Order declared by the Minister under the *Rural Lands Protection Act 1998* (Wild Rabbits and Feral Pigs) or the *Local Land Services Act 2015* (Wild Dogs). Under these Orders "a general destruction obligation is imposed requiring the occupier of controlled land (for the purpose of all of these orders, controlled land is all of NSW) to eradicate the pest by any lawful method".

The European Red Fox is the subject of a Pest Control Order under the *Local Land Services Act 2015*. Under this Order Local Land Services can serve an individual eradication order requiring the occupier or owner to eradicate the pest by use of a method specified by Local Land Services.

Pest control measures implemented during the 2014 Property Management Plan reporting period were:

- A 1080 baiting program to target wild dogs and foxes on the Hydro Land.
- Distribution of rabbit burrows were recorded.

European Carp (*Cyprinus carpio*) were observed in Wentworth Swamp during the monitoring for the baseline wetland vegetation survey in 2008. Action to eradicate this species remains unfeasible at this time due to the inability to isolate the waterway that Hydro control from the rest of the wetlands. There is currently no legislative requirement to eradicate European Carp.

2.1.5 Bushfire Risk

The majority of the Hydro Land has been identified as bushfire prone land in mapping undertaken by Cessnock City Council and Maitland City Council.

The Hunter Bush Fire Risk Management Plan (Hunter Bush Fire Management Committee, 2009) covers the Maitland and Cessnock LGAs. It includes the following management measures for the Hydro Land that Hydro has responsibility for implementing:

- Inspect the Strategic Fire Advantage Zone (strategic areas of fire protection advantage which reduce the speed and intensities of bush fires, and reduce the potential for spot fire development) and treated as required.
- The Strategic Fire Advantage Zone applies to the zone approximately one kilometre around the Smelter.
- Inspect Asset Protection Zone (area required to protect human life and property) and maintain as required.
- The Asset Protection Zone applies to the immediate surrounds (50 metre) of the Smelter, the Kurri Kurri Speedway and the Kurri Kurri Junior Motorcycle Club, as well as the electricity transmission lines and the South Maitland Railway.
- Inspect the Land Management Zone (bushfire risk managed to meet relevant land management objectives, in this case biodiversity conservation) and treat as required.
- The Land Management Zone applies to the remaining land outside the Strategic Fire Advantage Zone and Asset Protection Zone.
- Inspect the Land Management Zone for the Electricity Supply Transmission Line and treat as required.

Hydro continues to inspect the Hydro Land for bushfire risk. Bushfire preparedness, prevention and early detection measures that Hydro implements include:

- Mowing and brush cutting along Hard Road and Dickson Road, the open space at the end of Dawes Avenue, the Wangara property main entrance (off Cessnock Road), and the Kurri Kurri Junior Motorcycle Club.
- Slashing within areas of the Hydro Land.
- Litter collection along Hard Road.
- Inclusion of fire awareness and emergency response procedures in the Smelter induction.
- Provision and maintenance of firefighting equipment at the Smelter.
- Consultation with the Rural Fire Service and NSW Fire Brigade.
- Maintaining security fencing, undertaking security patrols and regular inspections of the Hydro Land (to reduce the risk of arson and rubbish dumping).

2.2 Potential Impacts

2.2.1 Native Biodiversity

2.2.1.1 The Smelter

Existing security fencing separates the Smelter from the native vegetation within the Hydro Land. Therefore machinery used in activities on the Smelter Site will not be able to inadvertently access and disturb native vegetation.

Landscaped (including native and exotic tree and shrub species) and grassed areas are located throughout the Smelter. Given their location and the type of vegetation the landscaped areas are unlikely to provide habitat for fauna species listed under the TSC Act or the EPBC Act. The Statement of Environmental Effects for Stage 1 Demolition concluded that the removal of the landscaped and grassed areas within the Smelter site would not have a significant ecological impact.

The development of the Containment Cell will require the clearance of approximately 1.35 hectares of Kurri Sand Swamp Woodland in the Sydney Basin Bioregion EEC and approximately 1.15 hectares of the Lower Hunter Spotted Gum - Ironbark Forest in the Sydney Basin Bioregion EEC.

Table 2-3 compares the area of these EECs proposed to be cleared against that recorded within the Hydro Land.

Table 2-3: Area of EEC Proposed for Clearance and Present in the Hydro Land

EEC	Area proposed to be cleared (ha)	Area mapped (ha) in Hydro Land	Percentage to be Cleared
Kurri Sand Swamp Woodland in the Sydney Basin Bioregion	1.35	339.20	0.001
Lower Hunter Spotted Gum - Ironbark Forest in the Sydney Basin Bioregion	1.15	366.66	0.001

2.2.1.2 Hydro Land

A number of Hydro Land management activities could have an impact on Biodiversity. These activities include:

- The pest and weed control activities described in **Section 2.1**.
- Remediation (category 2 remediation under *State Environmental Planning Policy No. 55: Remediation of Land*) of contaminated soils and waste disposal areas. Native vegetation adjoins these areas and impacts will need to be avoided (where possible) or managed.

2.2.2 Weeds and Vertebrate Pests

The weeds present within the Hydro Land primarily pose an environmental risk. These weed species compete with native flora and, if not appropriately managed, result in areas dominated by the weed species. Aquatic weed species can have an adverse impact on aquatic fauna by deoxidising water.

Vertebrate pests pose risks to the native biodiversity of the Hydro Land. This is as a result of predation of native fauna (by Wild Dogs, Foxes and Pigs), feeding on native flora, competing with native fauna for resources and habitat, damaging native fauna and flora habitat, and can promote the spreading of weeds. Feral Pigs, Foxes and Wild Rabbits are listed as "Key Threatening Processes" under the BC Act.

In addition, rabbit burrows can undermine buildings and infrastructure, as well as pose a safety risk to personnel (as a trip hazard if not sighted).

2.2.3 Bushfire Risk

The key potential risks that bushfire within the Hydro Land poses are:

- Risk to Hydro personnel and contractors working at the Smelter or within the Hydro Land.
- Risk to tenants within rental properties within the Hydro Land.
- Risk to buildings and infrastructure within the Smelter and servicing the Smelter (such as electricity supply infrastructure).
- Risk posed to properties and infrastructure adjoining the Hydro Land.
- Potential harm to native Biodiversity.

Fire has the potential to occur as a result of Project activities due to machinery malfunction, incorrect handling of waste materials or incorrect implementation of demolition procedures.

3. IMPLEMENTATION

3.1 Roles and Responsibilities

Table 3-1 identifies the Hydro personnel with key environmental management roles and their responsibilities.

Table 3-1: Hydro Personnel and Environmental Management Responsibilities

Position	Responsibilities
OVERALL SITE MANAGEMENT	
Managing Director	<p>Make certain that the Hydro Team and contractors are implementing this BMP; and have attained and are complying with applicable development approvals and permits.</p> <p>Provide adequate resources and funding for the implementation of this BMP.</p> <p>Review and approve RWEMP and sub-plans (including this BMP).</p> <p>Liaise with government and community stakeholders regarding the activities at the Smelter and Hydro Land.</p> <p>Provide adequate resources and funding for the monitoring and auditing of: the implementation of this plan and associated plans and procedures; and overall environmental performance.</p>
Principal Environmental Consultant	<p>Provide advice in relation to environmental management and performance.</p> <p>Review and modify the RWEMP and sub-plans (including this BMP) as directed by the Managing Director/Project Manager.</p> <p>Review and approve the contractors' environmental management documentation prior to commencement of activities and inform contractors of changes to the RWEMP and sub-plans (including this BMP).</p> <p>Assist in the response and investigation of environmental incidents and implement corrective actions arising from environmental incidents and audits.</p> <p>Coordinate ecologists to undertake vegetation pre-clearance surveys and (if required) to assist with management of native fauna encountered in the Works area.</p>
Principal Communications Consultant	<p>Manage the mechanisms available for the community to receive information and to make enquiries or complaints about activities</p>
SMELTER DECOMMISSIONING, DEMOLITION AND REMEDIATION ACTIVITIES	
Contract Administrator	<p>Provide relevant environmental legislative, regulatory and management requirements in tender documentation.</p> <p>Verify that the work of contractors within the Hydro Land is undertaken in accordance with this BMP.</p> <p>Undertake a weekly inspection of the Project activities in the Hydro Land, for the duration of the Project.</p>
Commercial Manager	<p>Coordinate environmental background checks to determine whether potential contractors have been involved in court proceedings or have been issued with environmental penalty notices from Government Departments.</p> <p>Coordinate the inclusion of relevant environmental legislative, regulatory and management requirements in tender and procurement documentation.</p>

Position	Responsibilities
Workplace Health and Safety (WHS) Manager	<p>Provide Hydro personnel with the necessary tools and training to enable effective implementation of the BMP.</p> <p>Implement and maintain an induction package to be provided to all personnel working at the Smelter and Hydro Land, which will include information relevant to Biodiversity management, including bushfire response.</p> <p>Ensure that the Emergency Response Plan includes procedures for response to bushfire within the Hydro Land and adjoining properties.</p> <p>Coordinate the response and investigation of environmental incidents and implement corrective actions arising from environmental incidents.</p> <p>Maintain a record of personnel induction and training records.</p>
CARE, MAINTENANCE AND HYDRO LAND MANAGEMENT ACTIVITIES	
Demolition Contractor	<p>Comply with the requirements of the BMP as it applies to Smelter demolition activities.</p> <p>Implement the environmental measures and actions as described in the BMP through a Demolition EMP and supporting sub-plans and specific procedures that comply with this BMP.</p> <p>Develop and implement procedures for self-checking environmental management compliance with the Demolition Contractor's procedures and this BMP.</p> <p>Report potential or actual environmental incidents associated with demolition activities at the Smelter, and assist as required in the investigation, implementation of corrective actions and recording of the incident.</p>
Remediation Contractor	<p>Comply with the requirements of the BMP as it applies to Smelter and relevant Hydro Land remediation activities.</p> <p>Comply with the requirements of the BMP to ensure that vegetation clearance is restricted to the area and locations approved by SSD 6666.</p> <p>Implement the environmental measures and actions as described in the AQMP through a Remediation EMP and supporting sub-plans and specific procedures that comply with this BMP.</p> <p>Develop and implement procedures for self-checking management compliance with the Remediation Contractor's procedures and this BMP.</p> <p>Report potential or actual environmental incidents associated with remediation activities at the Smelter and relevant Hydro Land, and assist as required in the investigation, implementation of corrective actions and recording of the incident.</p>
Environmental Officer/ Buffer Zone Manager	<p>Coordinate and implement the Hydro Land management requirements of this BMP.</p> <p>Verify that the work of contractors and Hydro personnel on Hydro Land are undertaken in accordance with this BMP.</p> <p>Undertake a weekly inspection of activities on the Hydro Land that will occur for two weeks or more.</p>
ALL AREAS AND ACTIVITIES	
Contractors	<p>Comply with the requirements of this BMP as applicable.</p> <p>Implement the measures and actions as described in the BMP (as applicable) through procedures and management plans that comply with this BMP.</p> <p>Develop and implement procedures for self-checking environmental management compliance with Contractor's procedures and this BMP.</p>
All Personnel	<p>Implementation of the relevant environmental measures described in this BMP applicable to their activities.</p>

3.2 Management Measures

Hydro will implement a number of controls to manage Biodiversity impacts that may be generated from demolition and remediation activities. The Biodiversity management measures to be implemented on Site are outlined in **Table 3-2**.

Table 3-2: Biodiversity Management Measures

Management Measures	Actions	Timing/ Frequency	Responsibility	Further Detail
The requirement to avoid native vegetation beyond the Smelter will be confirmed during site inductions.	Information on ecologically sensitive areas, the restrictions on entering these areas and approved vegetation clearance areas and methodologies will be presented in the site induction as appropriate.	Prior to and during activities	WHS Manager Remediation Contractor Demolition Contractor	Section 3.3.2 of the RWEMP (inductions and training) Appendix 1 and Appendix 2
Any vehicles and machinery required to travel outside of the fenced Smelter area or cleared areas of the Hydro Land will require approval and will be required to travel on existing tracks and cleared areas.	Prior to driving a vehicle or operating machinery within or adjacent to native vegetation, the operator is to notify the Environmental Officer on the details of the proposed activities. All vehicles are required to travel within areas of native vegetation are to remain on existing access tracks. Native vegetation is not to be disturbed.	Prior to and during activities	Environmental Officer Remediation Contractor Demolition Contractor	
Prior to undertaking activities within the Hydro Land, the potential impacts on biodiversity are to be considered.	The mapping in Appendix 1 and Appendix 2 will be reviewed to identify if any mapped native vegetation (including EECs, threatened flora species or threatened fauna habitat) are within or adjoining the proposed activity location.	Prior to activities	Environmental Officer Principal Environmental Consultant	
	Wherever possible, the proposed activity methodology will avoid disturbance of native vegetation, particularly the mapped EECs, threatened flora species or threatened fauna habitat. This includes ground truthing of mapped areas of native vegetation.	Prior to activities	Environmental Officer Principal Environmental Consultant	
	In the event that mapping and ground truthing indicate that EECs, threatened flora species or threatened fauna habitat are potentially in the area proposed to be disturbed, an ecologist is to inspect the area and: <ul style="list-style-type: none"> Determine if endangered ecological communities, threatened flora species or threatened fauna habitat will be impacted. If such an impact is confirmed, the ecologist is to determine if that impact will be deemed significant under the BC Act or TSC Act and the EPBC Act. 	Prior to activities	Environmental Officer Principal Environmental Consultant	
	In the event that native vegetation clearance or disturbance is required that has not already been approved, the approval requirements for such clearing are to be identified and, where required, approval attained.	Prior to activities	Principal Environmental Consultant	

Management Measures	Actions	Timing/ Frequency	Responsibility	Further Detail
<p>Any clearance of native vegetation will be undertaken in accordance with the approval conditions and/regulatory requirements, as well as any ecologist recommendations.</p>	<p>The SSD 6666 Project Site boundary will be clearly delineated to limit the extent of vegetation clearance to that described in Appendix 1, and to restrict access during the Works.</p> <p>This will include:</p> <ul style="list-style-type: none"> • Survey and marking of the approved vegetation clearance areas. • Erection of fluorescent flagging with stakes at 20m along the boundary of the approved vegetation clearance prior to clearing. • Construction of security fencing around the perimeter of the Containment Cell vegetation clearance area/ construction site. • Maintaining the flagging along the vegetation clearance boundary in other locations in the Smelter. • Maintaining the security fencing around the Smelter Site. 	<p>Prior to activities</p>	<p>Principal Environmental Consultant Environmental Officer Remediation Contractor</p>	<p>Appendix 1 Remediation EMP</p>
	<p>Any machinery to be used for native vegetation clearance is to be cleaned of mud and any accumulated materials to avoid the importation of weed species seeds or propagules</p>	<p>Prior to vegetation clearance</p>	<p>Remediation Contractor</p>	<p>Remediation EMP</p>
	<p>Where native vegetation clearance is required, the following will be implemented prior to and during the vegetation clearing and tree felling:</p> <ul style="list-style-type: none"> • A pre-clearance survey will be undertaken by an appropriately qualified ecologist for the presence of any hollow bearing trees, nests or burrows for native animals. • If no burrows or nests are identified, clearance of the understorey can occur without further management • If no tree hollow is present, the tree can be felled without further management. • If hollows, nest or burrows inhabited by native animals are present, the following procedures will be implemented: <ul style="list-style-type: none"> • An ecologist or wildlife handler is to inspect the nest, burrow or tree and see if there are any markings or other signs indicating use. • If there is no evidence of use clearing can proceed. • If there is evidence of use: <ul style="list-style-type: none"> • Inspect the nest or burrow for the presence of animals. If present the animals are to be removed by an ecologist/ animal handler • For a tree, an excavator or similar is to shake the tree to alarm animals and encourage them to leave the tree. 	<p>Prior to and during any native tree clearance</p>	<p>Environmental Officer Principal Environmental Consultant</p>	<p>Remediation EMP</p>

Management Measures	Actions	Timing/ Frequency	Responsibility	Further Detail
Provision of nest boxes to compensate for the loss of any hollow bearing trees	<ul style="list-style-type: none"> • Leave it one day (to allow any animals to leave). • On the clearing day (in the presence of the ecologist/ animal handler), the tree is to again be shaken before bringing the tree down a short time later. • The animal handler is to check the hollow in the felled tree to see if animals are present. • The animal handler will remain during the felling of the tree. • If there any animals still in the hollow, the ecologist is to determine if the felled tree is to be left 24 hours to allow the animal to escape. The handler can determine if it the animal can be released or if it needs to be taken to a shelter or a veterinarian. <p>Green waste from native vegetation clearance will be managed in accordance with the Waste Management Plan.</p> <p>No hollow bearing trees have previously been identified in any areas to be cleared.</p> <p>In the event that a hollow bearing tree is identified during a pre-clearance survey, the following would be undertaken:</p> <ul style="list-style-type: none"> • Where possible, a section of the hollow would be retained from the tree to construct the next box. Alternatively, a manufactured nest box would be sourced. • An ecologist would identify the most suitable location for installation of the nest box in the vicinity of the cleared tree. • The nest box would be inspected six months and 12 months after 	<p>During activities</p> <p>Prior to and during activities</p>	<p>Remediation Contractor Environmental Officer</p> <p>Remediation Contractor Principal Environmental Consultant</p>	<p>Section 2.1 of the WMP (waste streams)</p>
Revegetation and erosion and sediment control to use appropriate species.	<p>Appropriate hybrid grass species (that cannot become weed issues in adjoining native vegetation) will be used in stabilising surfaces following completion of site activities.</p> <p>Mulch produced from the clearing of native vegetation will be made available for reuse in areas identified as suitable for revegetation with native species.</p>	<p>During and following activities</p> <p>During and following activities</p>	<p>Remediation Contractor</p> <p>Environmental Officer Remediation Contractor</p>	<p>Remediation EMP</p> <p>Remediation EMP</p>

Management Measures	Actions	Timing/ Frequency	Responsibility	Further Detail
Native animals encountered during activities are not to be harmed	Any native animals encountered during activities are to be avoided.	As required during vegetation clearance	Environmental Officer Demolition Contractor Remediation Contractor	Demolition EMP Remediation EMP
	In the event that an injured native animal is encountered during activities: <ul style="list-style-type: none"> Activities that could further harm the animal are to cease. The Environmental Officer is to be notified. The Environmental Officer will then notify the Native Animal Trust Fund (0418 628 483). 	As required	Environmental Officer	
Pest and weed control measures will be implemented when required to reduce threat posed to native biodiversity.	In undertaking inspections of or activities within the Hydro Land, record sightings of vertebrate pests and report in the Hydro Incident Reporting System.	As required	Environmental Officer	Section 5.2 of the RWEMP (inspections) Section 3.5.4 of the RWEMP (incidents)
	Develop and implement a vertebrate pest control plan in response to the recorded sighting in accordance with the applicable Pest Control Order.	As required	Environmental Officer	
	In undertaking inspections of or activities within the Hydro Land, record location of any noxious weed infestation and report in the Hydro Incident Reporting System.	As required	Environmental Officer	Section 5.2 of the RWEMP (inspections) Section 3.5.4 of the RWEMP (incidents)
	Develop and implement a noxious weed control plan in response to a recorded infestation in accordance with the noxious weed classification and associated requirements under the <i>Biosecurity Act 2015</i> .	Annually	Environmental Officer	Table 2-3
	Any machinery to be transported to the Project site for clearance of native vegetation are to be clean of soils and muds to minimise the potential for spreading weed seeds and propagules	As required prior to vegetation clearance	Remediation Contractor	Remediation EMP
	Any machinery used for the removal of weeds or non-native vegetation will be cleaned of soils and muds prior to relocation for use in other parts of the Project site	As required following clearance of weeds and non-native vegetation	Remediation Contractor	Remediation EMP

Management Measures	Actions	Timing/ Frequency	Responsibility	Further Detail
Record any exceptional incidents that cause unexpected native flora or fauna impacts, and the action taken to resolve the situation in the Hydro Incident Reporting System.	Record flora or fauna related incidents in the Hydro Incident Reporting System and implement corrective actions	As required	Environmental Officer Demolition Contractor Remediation Contractor	Section 3.5.4 of the RWEMP (incidents) Section 5.4 of the RWEMP (corrective action)
	Review corrective actions	One month after implementation	Environmental Officer	Section 5.4 of the RWEMP (corrective action)
Clearance zone will be maintained around the Smelter and to Hart Road to minimise potential bushfire impacts and maintain safe access	Undertake regular inspections of the clearance zone to assess if maintenance activities are required.	Quarterly	Environmental Officer	Section 5.2 of the RWEMP (inspections)
	Undertake slashing within areas of the Hydro Land, within the Kurri Kurri Junior Motorcycle Club, the open space at the end of Dawes Avenue, and the southeast corner of the "Wangara" property (northeast if the Smelter)	As required (as determined by inspections)	Environmental Officer	
	Undertake mowing and brush cutting along Hard Road and Dickson Road, the open space at the end of Dawes Avenue, the Wangara" property main entrance (off Cessnock Road), and the Kurri Kurri Junior Motorcycle Club.	As required (as determined by inspections)	Environmental Officer	
	Undertake litter collection along Hard Road.	As required (as determined by inspections)	Environmental Officer	
The bushfire prevention and response measures will be confirmed during site inductions.	Information on the actions to be taken in the event of a bushfire, and the measures to be implemented to avoid bushfire will be presented in the site induction.	Prior to and throughout activities	WHS Manager	Section 3.3.2 of the RWEMP (inductions and training) Section 2.1.5 of the RWEMP (bushfire risk)
	Specifically relating to the Containment Cell: <ul style="list-style-type: none"> Existing fire breaks and trails surrounding the Smelter will be maintained and accessible. The vegetation clearance required for construction of the Containment Cell includes allowance for construction of a service road around the Containment Cell. This cleared vegetation will provide a sufficient buffer between the Containment Cell construction, as well as access for fire fighting vehicles if required. 	During remediation activities	Environmental Officer Remediation Contractor	

Management Measures	Actions	Timing/ Frequency	Responsibility	Further Detail
Provision and maintenance of firefighting equipment at the Smelter.	<ul style="list-style-type: none"> The Smelter Access Plan will include provision for safe egress from the Project Site (particularly the Containment Cell) in the event that bushfire presents a risk to the Project Site and personnel. It will also include provision for emergency vehicle access to the Project Site. Firefighting equipment is to be provided at the Smelter and maintained to ensure that it is in good working condition. 	In accordance with manufacturer's/ supplier's requirements	WHS Manager	
Any bushfire within the Hydro Land is to be reported to emergency services.	In the event that bushfire is observed within the Hydro Land the Environmental Officer and WHS Manager are to be immediately notified. Details on the fire (location, severity, proximity to the Smelter, occupied residences or infrastructure) are to be noted and provided to the Environmental Officer and WHS Manager. Emergency services will be notified by calling "000".	Within 15 minutes of observing the bushfire	All	
Maintain communication with key fire management agencies.	In the event that the bushfire poses a risk to the Smelter and/or Hydro personnel and contractors, the applicable measures of the Emergency Response Plan will be implemented. Maintain Hydro's role within the Hunter Bush Fire Management Committee.	Within 15 minutes of observing the bushfire As required	Environmental Officer WHS Manager	
Activities that could provide a bushfire ignition source are prohibited or only undertaken with appropriate management controls.	No smoking is permitted within native vegetation areas. Machinery and hand held power required to be used within native vegetation areas tools that could create an ignition source (spark) are to be used in accordance with manufacturer's guidelines.	Ongoing Ongoing	Environmental Officer All All	

4. MONITORING AND REVIEW

4.1 Monitoring

A weekly inspection will be undertaken by the Hydro WHS Manager of the Smelter and by the Hydro Environmental Officer of activities in the Hydro Land. These inspections will include consideration of impacts on native biodiversity, and if there is evidence of noxious weeds or vertebrate pests.

The Hydro Environmental Officer will also undertake regular inspection of the Hydro Land. These inspections will include recording evidence of noxious weeds or vertebrate pests, and identifying if bushfire hazard reduction works are required.

4.2 Non-conformances

The need for preventative or corrective action arises from the identification of non-conformance with environmental legal requirements, Hydro environmental requirements or the potential for non-conformances to occur.

Non-conformances will be resolved and recorded in accordance with Section 3.5.5 of the RWEMP.

4.3 Complaints

Community Complaints are considered environmental incidents and are investigated and documented accordingly. Investigations are conducted by the Environment Officer or their delegate, which includes provision of feedback to the complainant. Corrective actions are documented and regularly reviewed until completion and signed off.

Handling of complaints (including any associated with biodiversity management) will be undertaken in accordance with Section 3.5.6 of the RWEMP.

4.4 Review and Improvement

Continual improvement of the BMP will be achieved by the continual evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The Managing Director is responsible for ensuring that a regular review of the RWEMP and specialist management plans is undertaken.

Reviews will be recorded in the document control section of this plan.

5. REFERENCES

Eco Logical Australia (ELA) (2016). *Hydro Aluminium Kurri Kurri Smelter Remediation and Demolition: Ecological Assessment*.

Hydro Aluminium (2006). *Hydro Aluminium Kurri Kurri Property Management Plan*.

Ramboll Environ (2015) *Statement of Environmental Effects - Demolition of Former Aluminium Smelter Buildings at Kurri Kurri*

Ramboll Environ (2016) *Environmental Impact Statement: Former Hydro Aluminium Kurri Kurri Smelter Demolition and Remediation*

Ramboll (2018) *Environmental Impact Statement: Former Hydro Aluminium Kurri Kurri Smelter Stage 2 Demolition*

Ramboll (2020) *Response to Submissions Report: Former Aluminium Kurri Kurri Smelter Remediation*

SMEC (2011). *Hydro Aluminium Kurri Kurri Property Management Plan Annual Report 2010*. Report prepared for Hydro Aluminium Pty Ltd, Kurri Kurri.

6. LIMITATIONS

Ramboll Australia Pty Ltd prepared this report in accordance with the scope of work as outlined in our proposal to Hydro Aluminium Pty Ltd dated 20 July 2018 and in accordance with our understanding and interpretation of current regulatory standards.

Site conditions may change over time. This report is based on conditions encountered at the site at the time of the report and Ramboll Australia Pty Ltd disclaims responsibility for any changes that may have occurred after this time.

The conclusions presented in this report represent Ramboll Australia Pty Ltd's professional judgment based on information made available during the course of this assignment and are true and correct to the best of Ramboll Australia Pty Ltd's knowledge as at the date of the assessment.

Ramboll Australia Pty Ltd did not independently verify all of the written or oral information provided to Ramboll Australia Pty Ltd during the course of this investigation. While Ramboll Australia Pty Ltd has no reason to doubt the accuracy of the information provided to it, the report is complete and accurate only to the extent that the information provided to Ramboll Australia Pty Ltd was itself complete and accurate.

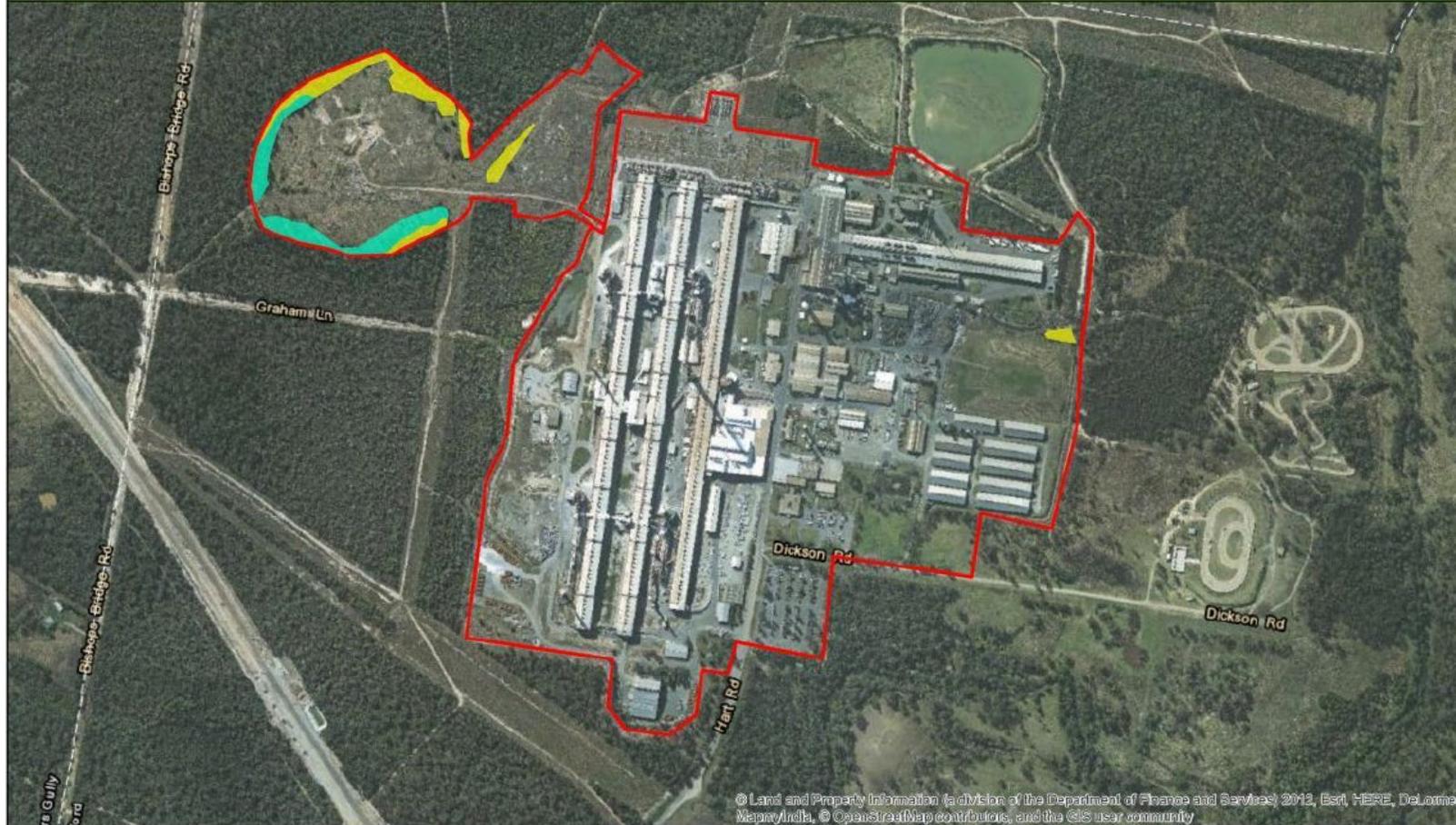
This report does not purport to give legal advice. This advice can only be given by qualified legal advisors.

6.1 User Reliance

This report has been prepared exclusively for Hydro Aluminium Pty Ltd. It may not be relied upon by any other person or entity without Ramboll Australia Pty Ltd's express written permission.

APPENDIX 1
PROJECT SITE VEGETATION MAPPING

Hydro Remediation and Demolition Project - Plant Community Types (PCTs)



© Land and Property Information (a division of the Department of Finance and Services) 2012, Esri, HERE, DeLorme, Mapbox, and the GIS user community

Legend

 Project Site

Plant Community Type

 Parramatta Red Gum - Narrow-leaved
 Apple - Prickly-leaved Paperbark shrubby woodland in the Cessnock-Kurri Kurri area

 Spotted Gum - Red Ironbark - Narrow-leaved Ironbark - Grey Box shrub-grass open forest of the lower Hunter

0 50 100 200
Metres

Datum/Projection:
GDA 1994 MGA Zone 56



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Prepared by: AVC/VH Date: 06/10/2015

**APPENDIX 2
RECORDED AND POTENTIAL THREATENED FAUNA AND MIGRATORY
SPECIES ON THE HYDRO LAND**

Class	Common Name	Scientific Name	TSC Act	EPBC Act	
Aves	Regent Honeyeater	<i>Xanthomyza phrygia</i>	Endangered	Endangered	
	Square-tailed Kite	<i>Lophoictinia isura</i>	Vulnerable	Not listed	
	Little Eagle	<i>Hieraaetus morphnoides</i>	Vulnerable	Not listed	
	White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	Not listed	Marine and Migratory	
	Freckled Duck	<i>Stictonetta naevosa</i>	Vulnerable	Not listed	
	White-throated Needletail	<i>Hirundapus caudacutus</i>	Not listed	Marine and Migratory	
	Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	Not listed	Marine and Migratory	
	Latham's Snipe	<i>Gallinago hardwickii</i>	Not listed	Marine and Migratory	
	Rainbow Bee-eater	<i>Merops ornatus</i>	Not listed	Marine and Migratory	
	Brown Treecreeper	<i>Climacteris picumnus victoriae</i>	Vulnerable	Not listed	
	Grey-crowned Babbler	<i>Pomatostomus temporalis</i>	Vulnerable	Not listed	
	Cattle Egret	<i>Ardea ibis</i>	Not listed	Marine and Migratory	
	Eastern Great Egret	<i>Ardea modesta</i>	Not listed	Marine and Migratory	
	Little Lorikeet	<i>Glossopsitta pusilla</i>	Vulnerable	Not listed	
	Diamond Firetail	<i>Stagonopleura guttata</i>	Vulnerable	Not listed	
	Hooded Robin	<i>Melanodryas cucullata</i>	Vulnerable	Not listed	
	Black-tailed Godwit	<i>Limosa</i>	Vulnerable	Not listed	
	Speckled Warbler	<i>Pyrrholaemus sagittata</i>	Vulnerable	Not listed	
	Mammalia	Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	Vulnerable	Vulnerable
		Yellow-bellied Sheath-tail-bat	<i>Saccolaimus flaviventris</i>	Vulnerable	Not listed
Little Bentwing-bat		<i>Miniopterus australis</i>	Vulnerable	Not listed	
Eastern Bentwing-bat		<i>Miniopterus schreibersii oceanensis</i>	Vulnerable	Not listed	
East-coast Freetail Bat		<i>Mormopterus norfolkensis</i>	Vulnerable	Not listed	
Greater Broad-nosed Bat		<i>Scoteanax rueppellii</i>	Vulnerable	Not listed	
Large-footed Myotis		<i>Myotis macropus</i>	Vulnerable	Not listed	
Squirrel Glider		<i>Petaurus norfolcensis</i>	Vulnerable	Not listed	
Spotted-tailed Quoll		<i>Dasyurus maculatus</i>	Vulnerable	Endangered	
Koala		<i>Pascolarctos cinereus</i>	Vulnerable	Vulnerable	
Reptile	Southern Brown Bandicoot	<i>Isodon obesulus</i>	Endangered	Endangered	
	Pale-headed Snake	<i>Hoplocephalus bitorquatus</i>	Vulnerable	Not listed	
Amphibians	Rosenburgs Goanna	<i>Varanus rosenbergi</i>	Vulnerable	Not listed	
	Green-thighed Frog	<i>Litoria brevipalmata</i>	Vulnerable	Not listed	
	Green and Golden Bell Frog	<i>Litoria aurea</i>	Endangered	Endangered	