BATHURST
RESOURCES LIMITED

Biodiversity Outcome Monitoring Plan

Buller Plateaux Continuation Project

August 2026

BPCP-ENV-PLN-009

Contents

Glossary of Terms and Abbreviations 4
1.0 Introduction 5
1.1 Project Description 5
1.1.1 Overview 5
1.1.2 Project Location 5
1.2 Plan purpose, objectives and scope 8
1.3 Stakeholder Engagement 9
2.0 Rehabilitation and Residual Effects Management Package Overview 9
2.1 Rehabilitation 9
2.2 Residual Effects Management (REM) Package 10
3.0 Stated biodiversity outcomes 11
3.1 Overview 11
3.2 Assessment of expected biodiversity outcomes 12
3.3 Rehabilitation outcomes and targets 22
3.3.1 Overview 22
3.3.2 Stated rehabilitation outcomes for habitat types 22
3.3.3 Rehabilitation outcomes for flora and fauna 23
3.4 REM outcomes and targets 26
3.4.1 REM outcomes for habitat types and flora 26
3.4.2 REM outcomes for fauna 27
4.0 Monitoring programme study area 31
4.1 Overview 31
4.2 Study design 31
4.3 Integrated terrestrial and wetland biodiversity monitoring stations 32
4.4 Monitoring Programme 32
4.5 Data collection 33
4.5.1 Remote sensing 33
4.5.2 Terrestrial vegetation monitoring 33
4.5.3 Terrestrial bird monitoring 34
Automated bird recorders 34
Five-Minute Bird counts 35

4.5.4 Lizard monitoring 36
4.5.5 Snail monitoring 37
Population response to predator removal within pest exclusion fences. 37
Monitoring cause of death in relation to pest exclusion fences 38
Monitoring cause of death in relation to Weka free exclosures 38

5.0 Reporting 38

5.1 Baseline reporting 38
5.2 Outcome reporting 39

6.0 Roles, Responsibilities, and Training 39

7.0 Management Plan Approval and Revision 41

7.1 Change Register 41

8.0 References 42

Attachment 1: Summary of Commitments 45

Glossary of Terms and Abbreviations

Term	Definition
ACO	Artificial Cover Object
BACI	Before After Control Impact
Bathurst	Bathurst Resources Limited, including its subsidiary companies BT Mining Ltd, Bathurst Coal Ltd, and Buller Coal Ltd
BPCP	Buller Plateaux Continuation Project
BOMP	Biodiversity Outcome Monitoring Plan
BRL	Bathurst Resources Limited
Buller Plateaux	A collective reference to the Stockton Plateau and Denniston Plateau
DBH	Diameter at Breast Height
DOC	Department of Conservation
FTAA	Fast-track Approvals Act 2024
GIS	Geographic Information System
PD	Project Description
REM	Residual Effects Management
RMA	Resource Management Act (1991)
SEQE	Suitably Experienced and Qualified Ecologist
SQEP	Suitably Qualified and Experienced Practitioner (term used in the consent conditions; confirm whether synonymous with SEQE)
The Project	The Buller Plateaux Continuation Project
Plan	Management Plan
VDT	Vegetation Direct Transfer
WCRC	West Coast Regional Council

1.0 Introduction

1.1 Project Description

1.1.1 Overview

Bathurst Resources Limited (BRL) is a publicly listed New Zealand coal mining company with a focus on people and long-term environmental sustainability. BRL is New Zealand's largest coal mining company, producing over 2 million tonnes of coal each year and employing over 550 people. Through its majority owned joint venture company BT Mining Limited, BRL operates the Stockton coal mine on the West Coast of the South Island, and Rotowaro and Maramarua coal mines in the North Island. The remaining estimated mine life at the Stockton Mine is currently approximately 5 – 7 years.

BRL is seeking approvals through the Fast-track Approvals Act 2024 ('FTAA') for the Buller Plateaux Continuation Project ('BPCP', or the Project) (Figure 1). The purpose of the Project is to reconsent the existing infrastructure and mining operations associated with the Stockton Mine and provide access to additional coal mining areas across the Buller Plateaux. The coal resource in the current Stockton operations is close to depletion, and further coal resources for blending are required.

The total project footprint is 2,718 hectares (ha), comprising for the purpose of ecological assessment:

- a proposed project disturbance area of approximately 755 ha[1]
- an indirect effects contingency area of approximately 128 ha[2] that, despite not being directly impacted, is conservatively treated as habitat loss; and
- existing consented disturbance areas.[3]

1.1.2 Project Location

The BPCP includes parts of both the Denniston and Stockton Plateaux, collectively referred to here as 'the Buller Plateaux' and is located approximately 15km northeast of Westport. The BPCP is a complex proposal which seeks to enable a mix of ongoing and new mining activities.

[1] Includes disturbance that will occur within the Project area as enabled by the FTA approvals associated with, for example: mining, mining infrastructure, roading, and buildings. As set out in the Terrestrial Ecological Impact Assessment report (EcoLogical Solutions 2026a, see Section 1.2.2), the Project disturbance area comprises approximately 755 ha.

[2] A 128 ha Indirect Effects Contingency Area has been applied to the edge of the 755 ha 'Project Disturbance Areas' (EcoLogical Solutions 2026a). The Indirect Effects Contingency Area accounts for edge effects (e.g., alterations in hydrology, light penetration, exposure) and general disturbance, e.g. noise, dust, lighting and vibration effects that may adversely affect habitats adjacent to the Project Disturbance Area. This area has been conservatively considered as total habitat loss for the purpose of the assessment of ecological effects despite the fact that this area will not be directly disturbed.

[3] Existing disturbance of 1,835 ha authorised up to 31 March 2027.

The land tenure is a mix of Crown, private and BRL owned land. The authorisations required for the proposed activities are being bundled into a single application to proceed through the FTAA process.

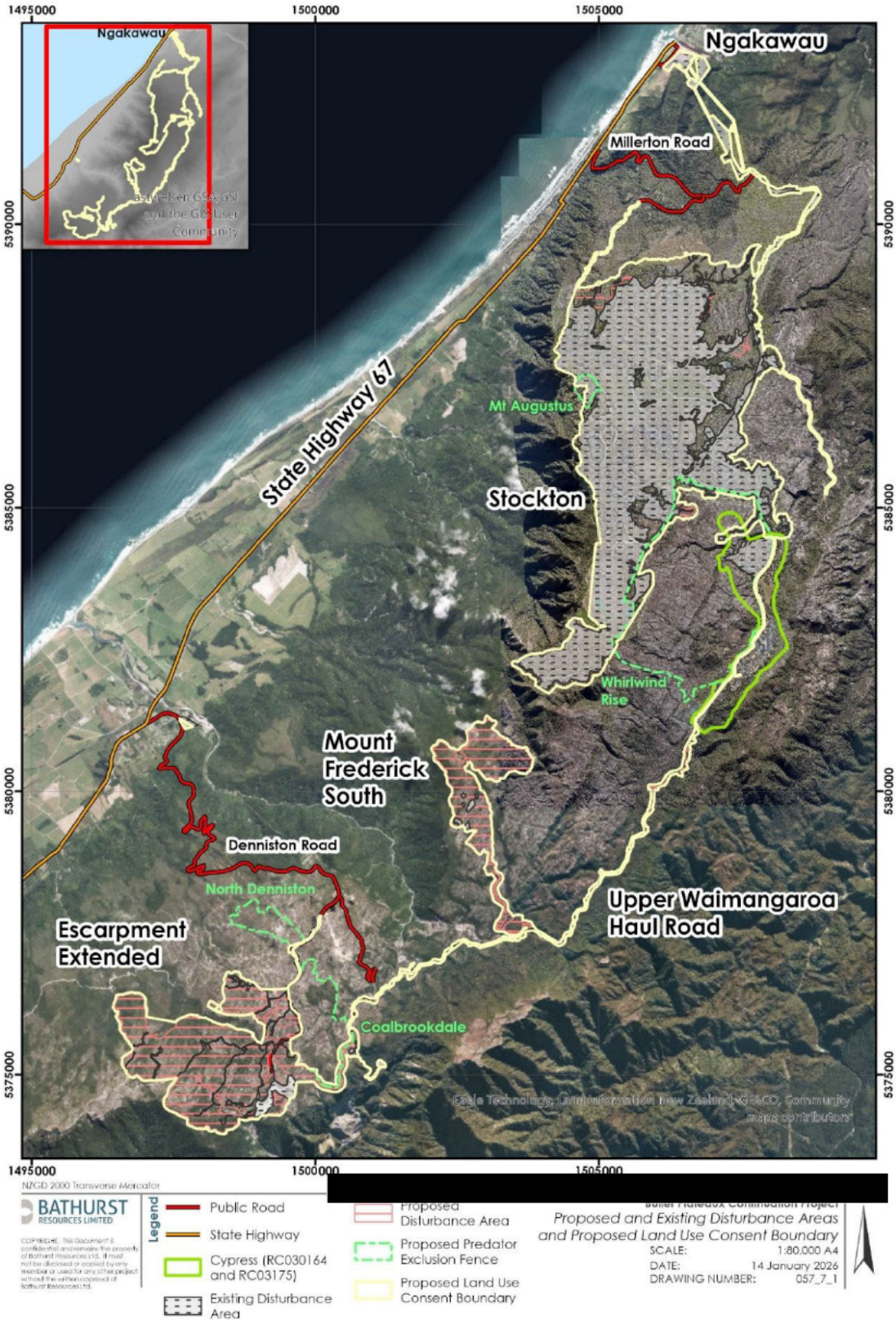

Figure 1: Buller Plateaux Continuation Project

1.2 Plan purpose, objectives and scope

This Biodiversity Outcome Monitoring Plan (BOMP) sets out the monitoring requirements to verify that stated outcomes are achieved across ecological rehabilitation and Residual Effects Management (REM) sites within 35 years, and to inform the need for adaptive management or contingency actions if required.

Biodiversity outcome monitoring measures the ecological response of habitats and species to rehabilitation and REM measures. It is complementary to, but distinct from, results monitoring (also termed compliance monitoring), which verifies whether prescribed management actions have been delivered to the required standard — for example, whether rat and stoat tracking indices have been reduced below stated thresholds in accordance with the Pest Control and Elimination Plan. The two streams are interdependent: outcome monitoring without results monitoring cannot distinguish failure of the management action from failure of the ecological response, while results monitoring alone cannot demonstrate that the biodiversity benefits the programme was designed to deliver are being realised.

This BOMP should be read in conjunction with the following inter-linked plans that set out the rehabilitation methods and REM actions and methods for achieving stated biodiversity outcomes:

- Rehabilitation Management Plan (RMP) BPCP-ENV-PLN-002;
- Weed Management Plan (WMP) BPCP-ENV-PLN-008; and
- Pest Control and Elimination Plan (PCEP) BPCP-ENV-PLN-022.

Moreover, this plan links to the following fauna management plans on the basis that the BOMP involves outcome monitoring for fauna at ecological rehabilitation and residual effects management sites:

- Avifauna Management Plan (AMP) BPCP-ENV-PLN-003;
- Snail Management Plan (SMP) BPCP-ENV-PLN-004; and
- Lizard Management Plan (LMP) BPCP-ENV-PLN-005

All conditions satisfied by this Management Plan are set out in Table 1 below. Conditions will be inserted upon the issue of the final decision.

Table 1 BPCP Biodiversity outcome monitoring related conditions

Reference	Condition	Relevant Section of Management Plan
	Biodiversity Outcome Monitoring Plan	

1.3 Stakeholder Engagement

The stakeholder consultation regarding associated technical reports and this management plan has been summarised in the Stakeholder Consultation section of the BPCP FTAA main application.

A draft of this management plan was supplied to relevant regulators and iwi (Ngāi Waewae/Te Runanga o Ngāti Waewae) as part of the FTAA pre-consultation engagement.

Once this management plan is approved, this section will document all future stakeholder engagement undertaken for subsequent versions.

2.0 Rehabilitation and Residual Effects Management Package Overview

2.1 Rehabilitation

Mined areas will be progressively rehabilitated as mining proceeds in accordance with a comprehensive site Rehabilitation Management Plan and the Annual Mine Plan using techniques that have proven effective at the existing Stockton Mine. The Rehabilitation Management Plan incorporates direct transfer of vegetation ('VDT'), planting and creation of habitats for vascular plants, bryophytes, lichens and invertebrates, lizards and avifauna.

The medium to long term focus of rehabilitation will be to develop self-sustaining ecosystems as defined in the Rehabilitation Outcomes Report (EcoLogical Solutions, 2026), with similar plant and animal species diversity and functionality to the surrounding (undisturbed) environment. It is acknowledged that this will take considerably longer than the 35-year biodiversity outcome monitoring programme in planted areas.

In broad terms, the extent and proportion of vegetation types will be different to the pre-mining situation with fewer, simpler vegetation communities that lack the extensive ecotones

and complex mosaic of types characteristic of the pre-mining vegetation. The main ecological drivers of altitude, aspect, drainage, rock cover and slope will remain.

2.2 Residual Effects Management (REM) Package

To address adverse effects on terrestrial and wetland biodiversity values that cannot be avoided, minimised, or remedied as set out in the REMR (Alliance Ecology 2026), a REM package for flora and fauna will include:

- 911 ha of pest-exclusion fenced areas (Appendix A, Figure 1 and 1A-1D) delivering a pest (including weka) free stronghold that current operations cannot provide including within the:
  - Denniston North fenced area (47.3 ha)(Figure 1A)) construction at Stage 14
  - Coalbrookdale fenced area (154.4 ha)(Figure 1B)) constructed at Stage 3
  - Mt. Augustus fenced area (14.6 ha)(Figure 1C)) constructed at Stage 5
  - Whirlwind Rise fenced area (694.9 ha)(Figure 1D)) constructed at Stage 7
- A 1,505 ha intensive mammalian pest control programme within the Blackburn Pakihi area with intense, multi-species ground-based trap and bait-station networks, aerial control and targeted ungulate control to consistently maintain low predator and ungulate abundance (Figure 2). Commencement of pest control operations in winter of Year 1
- The Weed Management Area ('WMA') in which weed control will be undertaken across approximately 9,431 ha (Figure 3) of the Buller Plateaux including the Blackburn Pakihi area. Of this, 6,713 ha of weed management will be undertaken within REM areas (for REM purposes) with the remaining 2,718 ha of weed management undertaken within the project footprint for rehabilitation and mitigation purposes. Commencement of weed management operations will occur in Year 1.
- The wider managed landscape (control halo) (Figure 4), comprising the forested catchments and regenerating lands surrounding the Blackburn Pakihi intensive ground-control area and pest exclusion fenced areas that will function as a buffer and connect the core management areas with the broader landscape. This area of approximately 23,843 ha includes most of the Weed Management Area and will allow for recovery of forest vegetation and native birds, including the great spotted kiwi/roroa (*Apteryx maxima*). Periodic aerial 1080 operations and supporting ground-based stoat control will maintain low pest densities of key mammalian predators

4 The years related to each stage had not been confirmed at the time of writing this management plan

across this landscape. Commencement of mammalian pest control operations will occur in Year 1.

Year 0 precedes Year 1 and represents the year in which residual effects management measures are set up, resources mobilised, and baseline biodiversity outcome monitoring is undertaken, in advance of the implementation of residual effects management measures that are scheduled to commence in Year 1.

3.0 Stated biodiversity outcomes

3.1 Overview

Stated biodiversity outcomes (net gain, net positive, uncertain, or net loss), and the stated magnitude of any net loss, will be verified using quantitative metrics wherever this is achievable. Quantitative verification requires monitoring data of sufficient quality and quantity to characterise the outcome with confidence, and this will not be possible for all biodiversity values. For values present in low numbers, or for species that are difficult to detect because they are cryptic or secretive or have life-history traits that limit detectability, the monitoring programme may not generate enough data to verify the outcome quantitatively. In other cases the change in a biodiversity value in response to rehabilitation or residual effects management may be real but too small to detect against natural variability, so that it cannot be reliably distinguished through monitoring. Likewise, where data are available but ambiguous or difficult to interpret, the outcome may remain unclear. In these cases, no targets will be set due to data constraints as has been stated, where applicable, in the relevant tables below.

Outcomes for biodiversity values are separated into:

- Outcomes for rehabilitated areas (Section 3.3): and
- Outcomes for REM areas (Section 3.4).

The proposed rehabilitation programme intends to re-instate habitat features across the Project Disturbance Area to the extent possible. The success of habitat objectives and the response of biodiversity to rehabilitation efforts will be verified using quantitative metrics where this can be achieved. All stated outcomes, including predicted net loss outcomes, warrant verification on the basis that rehabilitation efforts for some species may prove successful despite the assumption of net loss outcomes. The REM programme intends to improve ecological integrity of indigenous biodiversity through the control or elimination of weeds and introduced mammalian predators and browsers. The extent and degree of biodiversity benefits will also be verified using commonly used quantitative metrics. In broad terms, the metrics used to verify both rehabilitation outcomes and REM outcomes for the Project, include changes in:

- Habitat extent via remote sensing
- Indigenous plant dominance and species richness via quantitative vegetation plots
- Occupancy or relative species abundance based on counts or percent cover (vascular and non-vascular vegetation) within vegetation plots
- Weediness (in terms of species richness and relative abundance within vegetation plots)
- Indigenous avifauna species richness via acoustic monitoring
- Indigenous avifauna species occupancy rates and abundance indices via acoustic monitoring and five minute bird counts
- Lizard species occupancy or relative abundance via Artificial Cover Object searches, manual searching and critter pics
- *Powelliphanta patrickensis* plot population estimates from standard capture-recapture plot surveys

For each biodiversity value that can be quantitatively measured:

- the rehabilitation outcomes will be used to confirm that the stated residual effects assessment, which factors in expected rehabilitation outcomes was appropriate; and
- REM outcomes will be used to:
  - inform adaptive management or contingency requirements along the way to ensure that stated outcomes are met; and
  - verify overall Net Gain or Net Loss outcomes at 35 years from approval being granted.

While a number of net loss or uncertain outcomes are predicted for values impacted by Project activities, net positive outcomes for most of these values are anticipated at the REM sites, including an increase in ecological integrity for all habitat types and all species that are negatively affected by mammalian pests and weeds.

3.2 Assessment of expected biodiversity outcomes

In broad terms, and within the 26,259-ha area subject to various residual effects management measures, the proposed REM package is expected to maintain or improve the ecological integrity of native habitats and facilitate the recovery of many associated species that are currently vulnerable to predation or browsing by introduced mammalian pests and competition from invasive weeds.

Importantly, the pest management regimes proposed in the PCEP and WMA are based on current best practice and will result in benefits to several threatened species that, without

intervention, even in the absence of the Project, may become locally extinct in the medium or long-term (e.g., *P. patrickensis*).

The assessed level of residual effects on habitat and species values (moderate or higher) and expected biodiversity outcomes factoring in rehabilitation outcomes and following REM measures at 35 years after granting of approvals, are set out in Table 2 and Table 3.

Table 2 Assessed level of residual effects on biodiversity values (moderate or higher), and expected biodiversity outcomes following REM measures, at 35 years after granting of approvals

Impacted habitat type	Level of residual effect	Expected outcome at REM sites	Expected outcome overall	Metrics used to verify stated outcomes
Terrestrial habitats				
Southern rātā-mountain beech podocarp forest	Very high	Maintenance of or in increase in ecological integrity for life of management	Overall net loss of extent, but maintenance of or increase in ecological integrity within REM sites	• Remote sensing (spatial extent) • Indigenous dominance (plot-based survey) • Mean indigenous plant species richness (plot-based survey) • Relative occupancy (% occurrence) and relative abundance of notable plants (plot-based survey) • Relative occupancy (% occurrence of palatable bio-indicator assemblage (which includes *Coprosma grandifolia (kanono), Griselinia littoralis (broadleaf), Myrsine salicina (toro), Metrosideros umbellata (southern rata), Pterophylla racemosa (kamahi) and Pseudopanax spp (linearis, colensoi var ternatus) and Raukaua simplex (Haumakaroa).*
Sandstone erosion pavement (and associated vegetation)	Very high			
Mānuka -mountain beech-podocarp shrubland	High			
Mixed beech-podocarp-broadleaved forest	Moderate			
Silver beech-mountain beech forest	Moderate			
Boulderfields of acidic rock	Moderate			

Impacted habitat type	Level of residual effect	Expected outcome at REM sites	Expected outcome overall	Metrics used to verify stated outcomes
Wetland habitats				
Low pākihi wetland	Very high	Maintenance of or increase in ecological integrity for life of management	Overall net loss but maintenance of or increase in ecological integrity within REM sites	• Remote sensing (spatial extent) • Indigenous dominance (plot-based survey) • Mean indigenous plant species richness (plot-based survey), occupancy (% occurrence) and relative abundance of notable plants (plot-based survey)
Mānuka-tussock-wire rush shrubland (wetland)	Very high			
Mānuka/gahnia-wire rush shrubland (wetland)	High			
Flushes and seeps	Likely High			
Mānuka-mountain flax-wire rush shrubland (wetland)	Moderate			
Tussock-mountain flax shrubland	Moderate			
Tarns	Likely Moderate			

Table 3 Assessed level of residual effects on species values (moderate or higher), and expected biodiversity outcomes following rehabilitation (which is factored into the level of residual effects) and REM, at 35 years after granting of approvals

Impacted species	Level of residual effect	Expected outcome at REM sites	Expected outcome overall	Metrics used to verify stated outcomes
Vascular plants (*= not detected in Project Area to date)				
Bearded orchid (*Calochilus paludosus*)*	Very high	No change	Net loss	• Relative occupancy (% occurrence across monitoring programme replicates) • Relative abundance (number of plants or % cover per unit area)
*Bulbinella modesta**	Very high	No change	Net loss	
*Caladenia alata**	High	No change	Net loss	
*Caladenia minor**	High	No change	Net loss	
Coal measures tussock (*Chionochloa juncea*)	High	No change	Net loss	
Dracophyllum densum	High	No change	Net loss	
Euphrasia wettsteiniana	Very high	No change	Net loss	

Impacted species	Level of residual effect	Expected outcome at REM sites	Expected outcome overall	Metrics used to verify stated outcomes
Long-leaved pimelea (*Pimelea longifolia*)*	High	No change	Net loss	• Number of plants repatriated • Extent of VDT
Astelia subulata	Moderate	No change	Net loss	
*Brachyglottis traversii**	High	No change	Net loss	
Carse's sedge (*Carex carsei*)*	Moderate	No change	Net loss	
Dall's sedge (*Carex dallii*)*	Moderate	No change	Net loss	
Euphrasia disperma	High	No change	Net loss	
*Hymenophyllum pluviatile**	Moderate	No change	Net loss	
Dwarf rush (*Juncus pusillus*)*	Moderate	No change	Net loss	
*Pterostylis humilis**	Moderate	No change	Net loss	
Travers horopito (*Pseudowintera traversii*)	Moderate	No change	Net loss	
*Schizacme helmsii **	Moderate	No change	Net loss	
*Townsonia deflexa**	Moderate	No change	Net loss	
Sticherus tener	Moderate	No change	Net loss	
Sticherus urceolatus	Moderate	No change	Net loss	
Non-vascular plants (bryophytes and lichen)				
Isolembidium anomalum var. anomalum (Bryophyte)	High	No change	Net loss	• Relative occupancy (% occurrence across monitoring programme replicates) • Relative abundance (number of plants or %
Neogrollea notabilis (Bryophyte)	High	No change	Net loss	
Pycnothelia caliginosa (Lichen)	High	No change	Net loss	
Austropeltum glareosum (Lichen)	Very high	No change	Net loss	

Impacted species	Level of residual effect	Expected outcome at REM sites	Expected outcome overall	Metrics used to verify stated outcomes
*Cladia fuliginosa (Lichen)**	Very high	No change	Net loss	cover per unit area) • Number of plants repatriated • Extent of VDT • Outcome of bryophyte habitat creation (development of mature communities, presence of threatened and at risk species)
*Allisoniella scottii (Bryophyte)**	High	No change	Net loss	
*Pseudolophocolea denticulata (Bryophyte)**	High	No change	Net loss	
Cladia inflata (Lichen)	High	No change	Net loss	
Knightiella splachnirima (Lichen)	Very high	No change	Net loss	
Saccogynidium decurvum (Bryophyte)	High	No change	Net loss	
Chiloscyphus gippslandicus (bryophyte)	Assumed Very high	No change	Net loss	
Porella cranfordii (bryophyte)	Assumed Very high	No change	Net loss	
Acromastigum verticale (bryophyte)	Very high	No change	Net loss	
Telaranea inaequalis (bryophyte)	Very high	No change	Net loss	
Acromastigum interstisiale (bryophyte)	High	No change	Net loss	
Acromastigum mooreanum (bryophyte)	Assumed Moderate	No change	Net loss	
Andreaea subulata (bryophyte)	Assumed Moderate	No change	Net loss	
Blindia immersa (bryophyte)	Assumed Moderate	No change	Net loss	

Impacted species	Level of residual effect	Expected outcome at REM sites	Expected outcome overall	Metrics used to verify stated outcomes
Calycidium cuneatum (lichen)	Assumed Moderate	No change	Net loss	
Campylopus kirkii (bryophyte)	Assumed Moderate	No change	Net loss	
Cryptolophocolea tuberculata (bryophyte)	Assumed Moderate	No change	Net loss	
Dicnemon dixonianum (bryophyte)	Assumed Moderate	No change	Net loss	
Herzogianthus sanguineus (bryophyte)	Assumed Moderate	No change	Net loss	
Herzogianthus vaginatus (bryophyte)	Assumed Moderate	No change	Net loss	
Heteroscyphus billardierei (bryophyte)	Assumed Moderate	No change	Net loss	
Isotachis westlandica (bryophyte)	Assumed Moderate	No change	Net loss	
Kurzia tenax (bryophyte)	Assumed Moderate	No change	Net loss	
Kurzia nivicola (bryophyte)	Assumed Moderate	No change	Net loss	
Lembidium longifolium (bryophyte)	Assumed Moderate	No change	Net loss	
Lepidolaena novae-zelandiae (bryophyte)	Assumed Moderate	No change	Net loss	
Pachyschistochila virescens (bryophyte)	Assumed Moderate	No change	Net loss	
Pallavicinia rubristipa (bryophyte)	Assumed Moderate	No change	Net loss	
Pleurophascum ovalifolium (bryophyte)	Assumed Moderate	No change	Net loss	

Impacted species	Level of residual effect	Expected outcome at REM sites	Expected outcome overall	Metrics used to verify stated outcomes
Pyrrhobryum paramattense	Assumed Moderate	No change	Net loss	
Riccardia furtiva (bryophyte)	Assumed Moderate	No change	Net loss	
Trichotemnoma corrugatum (bryophyte)	Assumed Moderate	No change	Net loss	
Zoopsis bicruris (bryophyte)	Assumed Moderate	No change	Net loss	
Zoopsis ceratophylla (bryophyte)	Assumed Moderate	No change	Net loss	
Zoopsis matawaia (bryophyte)	Assumed Moderate	No change	Net loss	
*Andreaea acuminata (bryophyte)**	Assumed Moderate	No change	Net loss	
*Andrewsianthus perigonialis (bryophyte)**	Assumed Moderate	No change	Net loss	
*Archeophylla schusteri (bryophyte)**	Assumed Moderate	No change	Net loss	
*Bazzania exempta (bryophyte)**	Assumed Moderate	No change	Net loss	
*Degeliella rosulata (lichen)**	Assumed Moderate	No change	Net loss	
*Ditrichum strictum (bryophyte)**	Assumed Moderate	No change	Net loss	
*Leiorreuma exaltatum (lichen)**	Assumed Moderate	No change	Net loss	
*Lepidozia fugax (bryophyte)**	Assumed Moderate	No change	Net loss	
*Micarea isabellina (lichen)**	Assumed Moderate	No change	Net loss	

Impacted species	Level of residual effect	Expected outcome at REM sites	Expected outcome overall	Metrics used to verify stated outcomes
*Ochrolechia frigida (lichen)**	Assumed Moderate	No change	Net loss	
*Pseudocyphellaria lindsayi (lichen)**	Assumed Moderate	No change	Net loss	
*Riccardia multicorpora (bryophyte)**	Assumed Moderate	No change	Net loss	
*Schistochila pluriciliata (bryophyte)**	Assumed Moderate	No change	Net loss	
*Tayloria callophylla (bryophyte)**	Assumed Moderate	No change	Net loss	
Avifauna				
Roroa/great spotted kiwi	High	Increase in population size	Net loss in habitat extent. Net increase in population size across the residual effects area	Changes in occupancy or abundance indices of birds within the 26,259 ha REM sites
Kārearea/NZ bush falcon	High	Increase in population size	Net loss in habitat extent. Net increase in population size	
Koekoeā/long-tailed cuckoo	High	Increase in population size	Net loss in habitat extent. Net increase in population size	
Kakaruai/South Island robin	High	Increase in population size	Net loss in habitat extent. Net increase in population size	

Impacted species	Level of residual effect	Expected outcome at REM sites	Expected outcome overall	Metrics used to verify stated outcomes
Mātātā/South Island fernbird	High	Increase in population size	Net loss in habitat extent. Net increase in population size	
Kākāriki/Yellow-crowned parakeet	NOT IMPACTED	Increase in population size	Net loss in habitat extent. Net increase in population size	
Kererū	Moderate	Increase in population size	Net loss in habitat extent. Net increase in population size	
Korimako/ bellbird	Moderate	Increase in population size	Net loss in habitat extent. Net increase in population size	
Tūī	Moderate	Increase in population size	Net loss in habitat extent. Net increase in population size	
Lizards				
West Coast green gecko	Very high	Increase in population size	Net loss in habitat extent. Net increase in population size	Changes in occupancy or abundance indices
Westland speckled skink	Very high	Increase in population size	Net loss in habitat extent.	

Impacted species	Level of residual effect	Expected outcome at REM sites	Expected outcome overall	Metrics used to verify stated outcomes
			Net increase in population size	
Forest gecko	High	Increase in population size	Net loss in habitat extent. Net increase in population size	
Notable terrestrial Invertebrates				
P. patrickensis	Very high	Increase in population size	Net loss in habitat extent. Net increase in population size	Changes in Plot population estimates [5]
Avatar moth (*Arctesthes avatar*)	Very high	Uncertain	Assumed net loss in habitat extent and population size	Not proposed for biodiversity outcome monitoring
Pseudaneitea sp. (slug)	Very high**	Uncertain	Assumed net loss in habitat extent and population size	
White-faced cave weta (*Occultastella morgana*)	Very high**	Increase in population size	Net loss in habitat extent. Net increase in population size	
Forest ringlet butterfly (*Dodonidia helmsii*)	Moderate	Uncertain	Assumed net loss in habitat extent and population size	

[5] Proposed for monitoring in accordance with the methods set out in the Snail Management Plan (BPCP-ENV-PLN-004)

**Treated as Threatened despite not having a Threat classification status

3.3 Rehabilitation outcomes and targets

3.3.1 Overview

As set out in the Rehabilitation Management Plan (RMP) (BPCP-ENV-PLN-002) ecological rehabilitation will be undertaken across 664.5 ha of the 755 ha (88.1%) Project disturbance area. Areas not subject to ecological rehabilitation within the footprint are limited to those where ecological rehabilitation cannot be achieved, i.e. including pit lakes, roads and other permanent infrastructure.

3.3.2 Stated rehabilitation outcomes for habitat types

Post mining habitat extent targets as set out in the RMP (BPCP-ENV-PLN-002) including the areal extent of ecological rehabilitation and the percentage availability of each habitat type pre-Project disturbance are set out in Table 4 below. The degree to which post-mining vegetation types have matured within 35 years of approval being granted will depend on the habitat type, whether the habitat type is planted or from VDT, and when an area is available for VDT. However, at year 35 the area extent of post-mining vegetation types will need to be tracking in accordance with Table 4 targets with respect to extent, and the associated assemblage and species biodiversity metrics set out in Section 3.3.3 below with respect to species richness.

Table 4 Extent of each pre-mining and post-mining vegetation type within the BPCP Disturbance area.

Pre-mining Vegetation Type	Amount removed (ha)	Target post-mining vegetation types	Approximate extent (includes VDT and planting (ha)
Forest	**188.1**		**248.6**
Mixed beech-podocarp-broadleaved forest	5.5	Tall forest	7.2
Southern rātā-mountain beech-podocarp forest	177.1	Beech forest (a)	234.2
Silver beech-mountain beech forest	5.5	Beech forest (b)	7.3
Shrubland	**214.2**		**125.7**
Mānuka-mountain beech-podocarp shrubland	84.7	Mānuka shrubland (a)	52.8
Mānuka/Gahnia-wire rush shrubland	9.2	Mānuka shrubland (b)	5.7
Shrubland with exotic component	12.5		
Mānuka-tussock-wire rush shrubland	104.2	Pākihi	64.9
Mānuka-mountain flax/wire rush shrubland	3.7	Flax shrubland (a)	2.3

Pre-mining Vegetation Type	Amount removed (ha)	Target post-mining vegetation types	Approximate extent (includes VDT and planting (ha)
Low vegetation	**216.4**		**130.1**
Low pākihi	213.9	Pākihi	129.1
Tussock-mountain flax shrubland	1.7	Flax shrubland (b)	1.0
Exotic grassland	0.8		
Non-vegetated land cover	**135.5**		**159.9**
Bare rock	63.6	Rockfield	91.1
Pre-existing cleared habitat	69.8		
Water	2.1		
Rehabilitated highwall			**68.8**
Rockfield			**91.1**
Total	**755**		**664.5**

3.3.3 Rehabilitation outcomes for flora and fauna

In addition to the areal extent of each habitat type to be created set out above, stated outcomes for biodiversity metrics resulting from rehabilitation within 35 years of approvals being granted are provided below.

These metrics are relative to the pre-mining condition as derived from the baseline biodiversity outcome monitoring programme set out in Section 4 below and benchmarked against the results from ecological surveys undertaken in existing rehabilitation sites from already consented mining activities across the Plateaux as set out in the RMP (BPCP-ENV-PLN-002).

Relative to pre-disturbance metrics within the Project Disturbance Area derived from the baseline biodiversity outcome monitoring programme, rehabilitation at 35 years from approval being granted is expected to generate the following outcomes across the Project Disturbance Area:

- At least 30% of the mean native plant species richness[6] across planted habitats relative to pre-disturbance metrics within the ecological rehabilitation sites subject to native revegetation.
- At least 30% native plant cover across planted habitats relative to pre-disturbance metrics within the ecological rehabilitation sites subject to native revegetation.
- At least 10% of the mean Threatened or At Risk plant species richness and abundance across planted habitats relative to pre-disturbance metrics within the ecological rehabilitation sites subject to native revegetation.

[6] Number of different species present

- At least 70% of the mean native plant richness across the habitats within the ecological rehabilitation sites subject to native vegetation direct transfer (VDT) relative to pre-disturbance metrics.
- At least 70% of the mean Threatened or At Risk plant species richness within the ecological rehabilitation sites subject to native vegetation direct transfer (VDT) relative to pre-disturbance metrics.
- At least 20% of the mean indigenous avifauna species richness and at least 10% mean occupancy and population abundance indices per monitoring station of the following indicator species relative to pre-disturbance metrics:
  - Kakaruai/South Island robin
  - Korimako/ bellbird
  - Mātātā/South Island fernbird
  - Pipit
  - Roroa/great spotted kiwi
  - Tūī
- At least 50% mean occupancy or count per 100 ACOs, Critter pic or count per unit hour of manual searching) for Westland speckled skink and forest gecko relative to pre-disturbance metrics (*it is assumed that the ecological rehabilitation will not provide suitable habitat for West Coast green gecko within 35 years*) within Vegetation Direct Transfer and at least 10% within revegetation sites[7]
- At least 50% of the mean abundance estimates for *P. patrickensis* relative to pre-disturbance metrics within Vegetation Direct Transfer but 0% within Revegetation sites.

Table 5 below provides a summary of biodiversity increase targets (occupancy and/or relative abundance) by Year 35 within the 665 ha rehabilitation area in response to rehabilitation measures.

Table 5. Summary of biodiversity increase targets (occupancy and/or relative abundance) by Year 35 within the 665 ha rehabilitation area in response to rehabilitation efforts.

Biodiversity value	Rehabilitation targets relative to baseline prior to mining at 35 years	
	Vegetation Direct Transfer	Revegetation
Mean native plant richness	70%	30%

[7] Baseline data within the Project footprint will be derived from the salvaging operations within the Project footprint prior to disturbance which includes the deployment of 2,240 Artificial Cover Objects which will be checked twice as well as 1,120 person hours of manual searching as setout in the Lizard Management Plan.

Biodiversity value	Rehabilitation targets relative to baseline prior to mining at 35 years	
	Vegetation Direct Transfer	Revegetation
Threatened and At Risk flora richness	70%	10%
Mean indigenous species richness (avifauna)	20%	
Roroa/great spotted kiwi	*No target set due to data constraints*	
Kārearea/NZ bush falcon	*No target set due to data constraints*	
Koekoeā/long-tailed cuckoo	*No target set due to data constraints*	
Kakaruai/South Island robin	10%	
Mātātā/South Island fernbird	10%	
Kererū	*No target set due to data constraints*	
Pipit	10%	
Korimako/ bellbird	10%	
Tūī	10%	
West Coast green gecko	0%	0%
Westland speckled skink	50%	10%
Forest gecko	50%	10%
P. patrickensis	*50%*	*0*

3.4 REM outcomes and targets

3.4.1 REM outcomes for habitat types and flora

With respect to habitat values and notable flora, whilst an overall net loss in extent and condition is expected for each habitat type and notable flora within the Disturbance Area, maintenance or in some cases a modest net increase in ecological integrity and condition is expected across the proposed REM sites. However, predicted outcomes for indigenous habitats and notable flora are conservatively framed as the maintenance of existing condition rather than as demonstrable, measurable increases over the baseline. This position reflects the following:

- A substantial proportion of the ecological gains achievable through mammalian pest suppression has, to varying degrees across the REM sites, already been realised through the historic and ongoing aerial 1080 operations administered by the Department of Conservation (DOC). The incremental benefit attributed to the higher-intensity, and more extensive pest management proposed under the REM is expected to be comparatively modest.
- The proposed biodiversity outcome monitoring programme, while methodologically robust and fit-for-purpose, is unlikely to possess the statistical power required to reliably detect small increases in the occupancy, relative abundance, or condition metrics of flora assemblages and individual notable species. Detecting effect sizes of the magnitude plausibly attributable to the incremental REM activity would require the spatial replication, temporal frequency, and sample sizes of the monitoring programme to be scaled up considerably and that is not deemed to be achievable from a resourcing or logistical standpoint. Conservatively predicting "maintenance" rather than "increase" therefore reflects the limits of detectability under a defensible monitoring design, not an absence of underlying ecological response.

In this context, it is important to emphasise that the maintenance of existing habitat and notable flora values within the REM sites, achieved through the proposed residual effects management, represents a genuinely positive ecological outcome rather than a neutral or default one. The REM programme is considerably more extensive in spatial coverage and more intensive in management effort than the status quo, and critically is more robust than the most plausible counterfactual future scenarios, in which conservation management across this landscape is expected to contract because of sustained constraints on DOC's operational funding. Viewed against that counterfactual, the maintenance of a number of current ecological values constitutes an active gain relative to the trajectory the receiving environment would otherwise follow and should be recognised as such when weighing the adequacy of the proposed residual effects management package. This is particularly true for fauna that are

threatened by introduced mammalian pests, including most native birds, all threatened lizards and *Powelliphanta patrickensis*. This is also expected for palatable vegetation that is susceptible to mammalian browsing or any vegetation susceptible to displacement by weeds.

3.4.2 REM outcomes for fauna

With respect to fauna values, whilst an overall net loss in the extent of habitat within the Project Disturbance area is expected for the short to medium term for some species (i.e., those which use open areas and shrubland) and the long term for others (forest species), a net increase in mean occupancy and/or relative abundance (i.e., exceeding residual losses) in the REM sites is expected within 35 years of granting of approvals based on the following outcomes across REM sites:

- A 10% increase in mean indigenous avifauna species richness per count and species' abundance indices compared to the baseline state prior to REM measures
- A 10% increase in mean occupancy or abundance indices per count of notable[8] avifauna species compared to the baseline state prior to REM measures. Notable avifauna are those that have been assessed as having moderate or higher values, based on threat status or functional importance as set out in the Buller Plateaux Terrestrial Ecological Impact Assessment Report (EcoLogical Solutions, 2026). Notable avifauna for which 10% increase targets have been set include:
  - Roroa/great spotted kiwi
  - Kakaruai/South Island robin
  - Mātātā/South Island fernbird
  - Kākāriki /Yellow-crowned parakeet
  - Korimako/ bellbird
  - Tūī

A summary of evidence justifying 10% increase expectations is set out in **Table 1** below.

Table 6 Summary of evidence indicating increase in breeding success or relative abundance of notable avifauna.

Species	Reference	Stated response to mammalian pest control	Site / region
Roroa / great spotted kiwi (Apteryx maxima)	Toy & Toy 2021 (Notornis 68).	Chick survival 26–52% 1 year under stoat control sufficient for population growth.	Flora Stream, Kahurangi NP

[8] Koekoeā/long-tailed cuckoo, Kārearea/NZ bush falcon and kererū are excluded as it is considered unlikely that sufficient data can be collected from this species to verify a 10% increase.

Species	Reference	Stated response to mammalian pest control	Site / region
			(translocated pop.)
Kakaruai / South Island robin (Petroica australis)	Bell et al. 2021 (NZJE 45); NZ Birds Online; Brown 1997 (Bird Cons. Int. 7).	Nest success rises significantly when 1080 knocks down ship rats (rats the main predator of eggs, chicks and incubating females); populations reported to increase rapidly and male-biased sex ratio to normalise where controlled. Benefit short-lived (~1–2 yr).	Tennyson Inlet, Marlborough; Silver Peaks, Dunedin
Mātātā / South Island fernbird (Poodytes punctatus)	Kilner et al. 2022 (Notornis 69); van Klink 2013 (NZ J Zool. 40).	Aerial 1080 improved nest survival over the breeding season with no 1080 deaths among 14 banded adults.	West Coast pākihi wetland
Kākāriki / yellow-crowned parakeet (Cyanoramphus auriceps)	O'Donnell & Hoare 2012 (NZJE 36); Elliott et al. 1996 (NZ J Zool. 23).	Statistically significant increase in 5-minute counts over 12 yr of integrated control (year effect P<0.001); (Overall native counts roughly doubled). Viability critically dependent on stoat density.	Landsborough (South Westland); Eglinton, Fiordland
Korimako / bellbird (Anthornis melanura)	Van Vianen et al. 2018 (NZJE 42); O'Donnell & Hoare 2012 (NZJE 36).	~3-FOLD INCREASE (≈200%) in treatment areas after a single aerial 1080 possum operation (replicated BACI). Also a statistically significant increase over 12 yr of integrated control.	Rolleston Range (E) & Alexander Range (West Coast); Landsborough
Tūī (Prosthemadera novaeseelandiae)	O'Donnell & Hoare 2012 (NZJE 36).	Statistically significant increase in 5-minute counts over 12 yr of integrated control (one of nine species; overall native counts roughly doubled).	Landsborough (South Westland)

- A 100% increase in mean occupancy or relative abundance of forest gecko, Westland speckled skink and West Coast green gecko (per 100 ACOs, Critter pic or count per unit hour of manual searching) within the pest exclusion fence network compared to the baseline state prior to REM measures. There is now direct evidence from New Zealand that lizard populations increase markedly once all mammalian pests, including house mice (Mus musculus), are removed from fenced exclosures. At the mouse-free 14-ha Mokomoko Dryland Sanctuary (Central Otago), schist gecko (Woodworthia 'Central Otago') counts in artificial retreats rose by ~240% over five years inside the fence and tracking indices were roughly five-fold higher for geckos and twenty-fold higher for skinks inside the fence (Turner & Norbury 2023). More recent results presented in the Central Otago Ecological Trust 2026. Mokomoko Newsletter No. 24, June 2026. Mokomoko Dryland Sanctuary, Alexandra indicate that populations of all lizard species continue to increase. At Macraes Flat, Otago skinks (Oligosoma otagense) and grand skinks (O. grande) inside mammal-proof fences increased by ~95% and ~44% respectively over three years, while an unmanaged control population declined ~86% (Reardon et al. 2012) with numbers continuing to increase there after.
- A 100% increase in the mean density estimates for *P. patrickensis* snail within the pest exclusion fence areas where *P. patrickensis* is present. This is based data from (Lloyd's Ecological Consulting (2026). Modelling Trends in *Powelliphanta patrickensis* Snail Populations on Buller Plateaux. Unpublished report Bathurst Resources Ltd, Westport, NZ. Final density estimates will be compared to the baseline state prior to REM measures in accordance with the Snail Management Plan (BPCP-ENV-PLN-004).

Additionally net increases in several species that are not impacted by the Project but that will benefit from REM actions will be monitored, including:

- A 10% increase in the mean occupancy / relative abundance of yellow-crowned Kākāriki, Kea and Kākā compared to the baseline state prior to REM measures.

Table 7 below provides a Summary of fauna percentage increase targets (occupancy and/or relative abundance) by Year 35 within the 26, 259 ha Residual Effects Management area in response to mammalian pest management.

Table 7. Summary of fauna percentage increase targets (occupancy and/or relative abundance) by Year 35 within the 26,259 ha Residual Effects Management area in response to mammalian pest management.

Species	Targeted increase across the 26,259 ha REM area by Year 35 due to mammalian pest management		
	Pest exclusion fences (911 ha)	Blackburn-Pakihi (1,505 ha)	Landscape control 23,843 ha)
Roroa/great spotted kiwi	10%		
Kārearea/NZ bush falcon	*No target set due to data constraints (low numbers)*		
Koekoeā/long-tailed cuckoo	*No target set due to data constraints (low numbers)*		
Kakaruai/South Island robin	10%		
Mātātā/South Island fernbird	10%		
Kākāriki/Yellow-crowned parakeet	10%		
Kererū	*No target set due to data constraints*		
Korimako/ bellbird	10%		
Tūī	10%		
West Coast green gecko	100%	0	0
Westland speckled skink	100%	0	0
Forest gecko	100%	0	0
P. patrickensis	100%	0	0

4.0 Monitoring programme study area

4.1 Overview

The biodiversity outcome monitoring programme will be undertaken across the ecological rehabilitation within the Project disturbance area and across REM sites before (baseline monitoring) and after the commencement of rehabilitation and REM actions.

Baseline monitoring will include:

- Biodiversity monitoring within the Project disturbance area against which to benchmark and verify that the stated outcomes of the ecological rehabilitation are realised at 35 years[9].
- Biodiversity monitoring prior to commencement of REM measures at REM sites.

This baseline monitoring will enable 'before versus after' comparisons across the 665 ha of Project disturbance area that is proposed for ecological rehabilitation and 26,259 ha of land outside the Project disturbance area that is proposed for REM.

Reference sites (i.e. unmanaged sites used to reference background environmental change) have not been incorporated into the biodiversity outcome monitoring programme. This reflects the spatial extent of the proposed residual effects management package, which subjects the entirety of the Buller Plateaux and the surrounding landscape catchments to some form of mammalian pest and/or weed management. There are therefore no ecologically comparable sites within the Buller Plateaux ecological context that are not themselves subject to the residual effects management measures proposed.

4.2 Study design

A spatially balanced sampling design will be used to select the locations of monitoring stations for terrestrial vegetation, terrestrial avifauna, lizards and invertebrates. The sampling design will be obtained using the balanced acceptance sampling (BAS) algorithm (Brown et al., 2015; Robertson et al., 2013) in the R package *spbal* (Robertson, van Dam-Bates, et al., 2025; Robertson, Davies, et al., 2025). The BAS algorithm provides balanced coverage over both geographic space and other dimensions (Brown et al., 2015). To allow variation in the intensity of sampling, a large, ordered master sample will be selected for each of the areas to be monitored. Any sub-sample of consecutively numbered sites in an ordered master sample provides a spatially balanced sample. Consequently, if the initial sampling intensity provided by an initial subset of consecutive units from

9 While existing information was captured as part of the identification of ecological values and assessment of ecological effects, replication was insufficient for reliable biodiversity outcome monitoring.

the ordered master sample proves insufficient, additional consecutive units from the ordered master sample can be added to increase the sample size and achieve the required sampling intensity.

Initially, master samples for each of the areas being monitored will be designed with an appropriate maximum sampling intensity and minimum distance between monitoring stations. Different sampling intensities can be achieved as required by selecting different sized subsets of consecutively ordered locations from the master samples.

Before the master samples are created for survey areas, any areas that are unsafe (e.g. too steep) or unsuitable (e.g. roads or water bodies) for monitoring will be identified in GIS and removed from the area being sampled. If a monitoring station location proves unsafe or unsuitable in the field, the monitoring station will be relocated to the closest feasible position to the original site.

Stratified sampling may be undertaken where strata are well defined and different sampling intensities are required in different strata.

4.3 Integrated terrestrial and wetland biodiversity monitoring stations

A total of 250 integrated terrestrial biodiversity monitoring stations will be established across the 755 ha Project disturbance area and the 26,259 ha of REM sites, using a randomised design stratified spatially and by habitat type including:

- 40 monitoring stations across the Project disturbance area, with monitoring commencing at each station within the 1st year of rehabilitation
- 210 monitoring stations across the REM sites including:
  - 60 monitoring stations across the 23,843 landscape REM area, in areas outside both the Project disturbance area, and outside the pest exclusion fence network and Blackburn Pakihi site (Figure 1)
  - 20 monitoring stations within the Denniston North pest exclusion fence area (47.3 ha)(Figure 1A)
  - 30 monitoring stations within the Coalbrookdale pest exclusion fence are (154.4 ha) on the Denniston Plateau (Figure 1B)
  - 20 monitoring stations within the Mt Augustus Pest exclusion fence (14.6 ha) (Figure 1C)
  - 40 monitoring stations within the Whirlwind Rise pest exclusion fence (694.9 ha) on the Stockton Plateau (Figure 1D)
  - 40 monitoring stations across the Blackburn REM area (1,505 ha) (Figure 2)

4.4 Monitoring Programme

Monitoring will continue for the life of approval (35 years) and/or until stated biodiversity outcomes have been verified.

Baseline monitoring will be undertaken prior to the commencement works (including to inform ecological rehabilitation outcome monitoring) and prior to REMP actions within the REM[10] sites[11].

This baseline monitoring (Year 0) will involve data collection at all terrestrial and wetland monitoring sites for the purpose of providing robust quantitative information on biodiversity characteristics and values prior to the commencement of project activities at the rehabilitation and REM sites.

Thereafter, outcome monitoring at rehabilitation and REM sites will follow a five-year rotational cycle, beginning once rehabilitation or REM actions commence at each site. Each year, one-fifth of the monitoring stations established at a particular site will be monitored. The timing of commencement of outcome monitoring following the initiation of ecological rehabilitation or REM measures will vary across the different ecological rehabilitation and REM sites.

During baseline monitoring, half of the 250 monitoring stations (125) will be monitored in November-December and the other half (125) in February March with each monitoring site being visited twice and one month apart. The same regime will follow for the monitoring programme at rehabilitation and REM sites once conservation management has commenced.

4.5 Data collection

4.5.1 Remote sensing

Remote sensing will be used to quantify temporal and spatial changes in terrestrial habitats within ecological rehabilitation and REM sites. This data will need to be calibrated against ground measurements at integrated monitoring stations as set out below. Remote sensing will be undertaken at a fine scale and include baseline imagery prior to the commencement of rehabilitation and REM measures.

Biodiversity metrics monitored at the integrated monitoring stations centre on terrestrial vegetation, terrestrial avifauna and lizards (but not invertebrates).

Each monitoring station centres on a 10 m x 10 m vegetation plot, from which all monitoring is undertaken in accordance with the methods set out below.

4.5.2 Terrestrial vegetation monitoring

Terrestrial vegetation monitoring will be undertaken within each 10m x 10m plot to quantify vegetation characteristics and change within the ecological rehabilitation and REM sites before (baseline) and after commencement of Project activities.

[11] The exception is that where REM residual effects management actions are scheduled for Winter 2026 (e.g. pest control in advance of lizard relocation), baseline lizard monitoring will be undertaken soon after REM actions

Each 10 m x 10 m plot will be delineated with permanent stakes at the centre and four corners (NW, NE, SW and SE corners) and numbered except for plots in the Project disturbance area as these will be lost during project activities. Permanent stakes will be H3 25 mm x 25 mm wooden stakes or steel posts. A GPS recording will be taken at the centre of each plot.

The data collection methods to verify stated effects management outcomes for terrestrial vegetation are set out in Table 8 below.

Table 8 Data collection methods for native terrestrial vegetation monitoring

Bioindicator	Method
Vegetation and habitat data collection	
Vegetation	Vegetation photo points with photographs taken from the centre of the plot on a NW, NE, SW and SE bearing. The plot will be centred by corner stakes.
Indigenous tree and sapling species richness	Composition of all saplings and trees > 2.5 cm Diameter at Breast Height (DBH) within 10 m x 10 m vegetation plots to obtain mean native species richness of saplings and trees per plot.
Seedling and herbaceous cover	Composition and percent cover of vascular and non vascular) vegetation, woody seedlings and ground habitat along with woody seedling counts within four 2 m x 2 m subplots located in each corner of the 10m x 10m vegetation plot.

4.5.3 Terrestrial bird monitoring

Automated bird recorders

Terrestrial birds will be monitored using automated bird recorders (Jahn et al., 2022; Navine et al., 2024; Pérez-Granados, 2021b). During monitoring periods (November to December or February to March) AR4 or AR5 acoustic recorders will be deployed at each of the 250 monitoring stations for 30 days. Sound files from the recorders will be transcribed using AviaNZ software (versions 2.0 - 3.2, http://www.avianz.net/index.php) with species call sequences identified in spectrograms of the recordings. Only recording sessions with good recording conditions will be transcribed.

Acoustic detection rate for the different species will be obtained from the recordings using intermittent subsampling (Bollongino, 2022; Cook & Hartley, 2018). Experience shows that an efficient sampling strategy for transcription of bird calls in NZ is by transcribing a 10 second sub-sample every 2.5 minutes of the recording (Bollongino, 2022). This sub-sampling strategy reduces the transcription time for 6 hours of recording to 24 minutes with only minor reductions in call detection rates.

Typically, data from automated bird recorders provides measures of species call activity and occupancy which can be used as species abundance indices. Estimating bird population abundance indices from acoustic recordings is relatively new, with analytic methods developing rapidly (Hutschenreiter et al., 2024; Pérez-Granados, 2021a). Automated call recognition software for NZ birds (e.g. Cacophony Project: https://www.cacophony.org.nz) in future may allow rapid automated transcription of the results of acoustic recordings of bird calls. Recordings from the surveys will be archived for future retrospective analyses with improved methods. This will allow better between-year comparisons of bird abundance in future.

Five-Minute Bird counts

Five Minute Bird Counts (5MBC) will be undertaken in accordance with Hartley and Greene (2012), except only native species will be recorded.

To this end, bird data collected for each observation during each 5MBC will include:

- Species composition and the number of individuals for each species recorded.
- Type of observation: aural, visual or both.
- Distance of observation from monitoring station (m)10 11 with distances of observations from observers classified into four bands: 0 – 19 m, 20 – 39 m, 40 – 99 m and >100 m.

Bird counts will be undertaken by the SEQE (suitably experienced and qualified ecologist(s)) after a quiet period of 5 minutes. Environmental conditions recorded prior to commencement will include:

- Temperature: cold (<5°c), cool, (6°c to 10°c), mild (11°c to 15°c), warm (16°c to 22°c), hot (>22°c).
- Weather: fine/sunny, moderate rain, overcast, partly cloudy, light rain, heavy rain
- Wind (Beaufort scale)
- Noise: no noise, low noise level, moderate noise level, high noise level.

In accordance with Hartley and Greene (2012) counts will not be undertaken during adverse conditions including heavy rain, cold (<5°c), excessive noise, or wind 5 or higher on the Beaufort scale. Data will be collected utilising digital devices with GIS capabilities.

Two 5MBC will be undertaken at each monitoring station 30 days apart including 1 5MBC when Automated bird recorders are deployed and 1 5MBC when automated bird recorders are retrieved.

Kiwi call counts

Kiwi call rates from acoustic recordings will be augmented by results from surveys using the standard Kiwi Call Count Monitoring method described in Colbourne et al. (2020). Kiwi call counts will be undertaken by 2 or more observers simultaneously positioned at separate permanent listening sites in the survey areas. Call counts will be started 30 minutes after dusk and last for 2 hours. There will be 3

replicate call counts at each listening site during each listening season. Copies of the call count data will be forwarded to Biodiversity Group, DOC National Office, PO Box 10420, Wellington.

4.5.4 Lizard monitoring

Lizard monitoring at integrated monitoring stations will include four double layer Artificial Cover Objects (**ACO**s) placed adjacent to all four corners of the monitoring station a minimum of 12 months prior to first check[12]. Monitoring at each station will include 0.5 person hours of timed manual searching via the lifting of rocks or coarse wood, checking crevices with a torch, or visual observations of basking lizards.

Critter Pics or similarly capable technology will be employed to assess changes in occupancy rates (or relative abundance trends if AI-trained individual species detection proves feasible). The CritterPic® animal monitoring system is a small, motion triggered camera trap that captures high-quality images of small animal species with real-time image transfer. The system is a useful tool for investigating the occurrence or occupancy rates of lizards, particularly for cryptic species at low densities in highly complex and/or difficult-to-access sites.

A single Critter Pic unit will be deployed at each of the 150 monitoring stations across the pest exclusion fences (110) and Blackburn intensive pest control area (40). At each monitoring station, Critter Pics units will be deployed at ground level near artificial cover objects (ACOs), suitable basking sites, or natural refugia (e.g. rock piles, logs, dense vegetation). Cameras will be configured to take rapid still images or short bursts when triggered. Critter Pics at each monitoring station will be run for a one-month period, either in November – December or February – March depending on the assigned monitoring period for each station.

Each unit will be baited with dried strawberries, tinned sardines, tinned pear, and peanut butter, with 50% of Critter Pics also baited with a PoaUku long-life lure. The Critter Pics will be secured to the ground, and the entrance to each unit will be cleared.

As set out in the Lizard Management Plan (LMP) (BPCP-ENV-PLN-005), this method will also be applied to assessing the success of the salvage and relocation programme.

[12] It is important to allow ample time for ACOs to bed in so that baseline results aren't confounded by inadequate time between ACO deployment and checks. Where REM actions are scheduled for Winter 2026 (e.g. pest control in advance of lizard relocation), baseline lizard monitoring will be undertaken after REM actions. However, in such instances, lizard monitoring will be undertaken within six months of commencement of REM actions, before any notable changes can occur.

4.5.5 Snail monitoring

Population response to predator removal within pest exclusion fences.

Monitoring and comparing trends in *P. patrickensis* snail populations inside and outside proposed pest exclusion fenced areas, will be undertaken using a Before-After-Control-Impact (BACI) monitoring programme with biennial capture-recapture surveys of matching samples of 70 m square plots inside and outside the fenced areas. Details of the capture-recapture methods are provided in the SMP (BPCP-ENV-PLN-004).

The BACI monitoring programme in each of the pest exclusion fenced areas will begin before the area is fenced and pests removed, with capture-recapture surveys of matching plots located inside and outside the footprints of the proposed pest exclusion fenced areas undertaken twice, with a two-year interval between surveys. After an area is fenced and pests removed, surveys of the matching plots in the fenced area will be undertaken biennially.

Two permanently marked capture-recapture plots will be established in the area of the planned 47-ha Denniston North pest exclusion fenced area and the two existing nearby capture-recapture plots (Lloyd, 2024a) on Denniston Plateau will be retained to serve as matching plots for plots in the fenced area. Capture-recapture plots will be established within the proposed pest exclusion fenced area and surveyed during the first summer after the project commences, before the area is fenced and pests are removed. Capture-recapture surveys of the matching plots will be undertaken biennially until 7 years after the Project commences, when results of the monitoring programme will be reviewed to determine whether continued monitoring is required. Final capture-recapture surveys will be undertaken at the time of mine closure on Denniston Plateau (Bathurst Resources Limited, 2026b).

The existing long-term monitoring (LTM) capture-recapture plots on Stockton Plateau (Lloyd, 2023) will be incorporated into the BACI monitoring programme for the proposed Whirlwind Rise pest exclusion fenced area on Stockton Plateau. LTM Plots 3 & 4 are within the area of the proposed pest exclusion fenced area, while nearby LTM Plots 1 & 2 are outside of it and will serve as matching plots for LTM Plots 3 &4.

To achieve representative geographic sampling, another two capture-recapture plots will be established in snail habitat elsewhere in the footprint of the Whirlwind Rise pest exclusion fenced area with matching nearby plots outside of the footprint. Fencing and removal of pests from the Whirlwind Rise pest exclusion fenced area is scheduled to be completed ten years after the Project commences on Stockton Plateau. There should be biennial capture-recapture surveys of the matching plots beginning 7 years after the Project commences, before the area is fenced and pests are removed, and continuing with a final survey at the time of mine closure on Stockton Plateau, which is predicted to be 16 years after commencement (Bathurst Resources Limited, 2025, 2026b).

Monitoring cause of death in relation to pest exclusion fences

Monitoring cause of death for snails inside and outside of the proposed pest exclusion fenced areas will be undertaken with a BACI monitoring programme using inspection of shell damage patterns to identify cause of death for snail shells found during daytime sub-surface searches of matching samples of 10 m square plots, inside and outside of a pest exclusion fenced area. To reduce habitat damage in plots caused by repeated searches each sample of plots will be divided into two sets, with each set of plots searched at 4-year intervals. However, searches of the two sets will be offset by two years allowing biennial surveys to obtain information on cause of death at biennial intervals.

Surveys of matching sets of plots for each pest exclusion fenced area will begin before the area is fenced and pests removed. Results from inspecting shells found during sub-surface plot searches will be augmented by inspection of damage patterns on any snail shells found during other snail monitoring work. Results from each set of biennial surveys for shells will be reviewed promptly after surveys are completed to identify whether any management responses are required and whether the monitoring programme for cause of death should continue. Details of the method used to identify cause of death from shell damage patterns are provided in Appendix 2 of the SMP (BPCP-ENV-PLN-004). Details of the daytime sub-surface plot search method are provided in Appendix 5 of the SMP (BPCP-ENV-PLN-004).

On the Denniston Plateau, matching samples of ten permanently marked 10 m square plots will be established inside and outside the 154-ha area of the proposed Coalbrookdale pest exclusion fenced area before it is fenced and pests removed. On the Stockton Plateau, Matching samples of 16 permanently marked 10 m square plots will be established inside and outside the proposed Whirlwind Rise pest exclusion fenced area before it is fenced and pests removed.

Monitoring cause of death in relation to Weka free exclosures

To monitor cause of snail death in the temporary 0.5 ha weka-free exclosures after weka have been removed, four 10 m square plots will be established in each of the temporary weka-free exclosures and another four plots established nearby, outside of the exclosures. Sub-surface searches will then be undertaken in all the plots to remove snail shells from the plots. Subsequently, each year one of the plots inside and one outside each of the weka-free exclosures will be searched for shells and snail's predators identified from the damage patterns left on snail shells (Appendix 2, SMP BPCP-ENV-PLN-004). Monitoring cause of snail death inside and outside weka-free enclosures will be continued until the relative role of predation by weka and rats in the snail population decline is confirmed.

5.0 Reporting

5.1 Baseline reporting

A baseline monitoring report will be provided that includes:

- Verification that the baseline monitoring programme has been established and undertaken in accordance with relevant requirements and methods set out in the BOMP or the most recent amended version;
- Baseline monitoring results including descriptive statistics, updated maps and representative photos; and
- Recommendations for improving the monitoring programme and effects management measures if required.

5.2 Outcome reporting

Annual biodiversity outcome monitoring reports will be submitted to Council and the Department of Conservation as part of the integrated annual ecology report. These reports will include:

- Verification that the monitoring has been undertaken in accordance with relevant approval conditions and the methods set out in the BOMP or the most recent amended version;
- Monitoring results including descriptive and statistical analyses of changes relative to the baseline for each of the metrics set out above. Results shall include updated maps and representative photos;
- Reporting against the outcomes
- Recommendations for adaptive management if interim results suggest that the rehabilitation and residual effects management programmes are not on-track to achieve stated outcomes at 35 years. This may include recommendation on the type, quantum and location of contingency measures to ensure that stated outcomes are achieved at 35 years; and
- Recommendations for improving the monitoring programme if required.

Should interim results from the biodiversity outcome monitoring reports indicate that stated biodiversity outcomes are unlikely to be achieved, adaptive management options will be considered. The location, scale, intensity, frequency, methods, location and duration of the proposed adaptive management measure(s) to be considered will be commensurate with requirements for achieving stated biodiversity outcomes within the stated timeframe.

Should the final biodiversity outcome report provided in year 35 indicate that stated outcomes have not been achieved despite implementation of adaptive management measures, contingency management and associated monitoring measures will be required. The location, scale, intensity, frequency, methods, location and duration of the proposed contingency measure(s) will be determined at that time, commensurate with the stated outcome(s) that have not been achieved.

6.0 Roles, Responsibilities, and Training

BRL is committed to continual training and awareness of all staff, employees, and contractors. Training and awareness procedures are an integral part of ensuring the full implementation of the BOMP across all aspects of all projects. Effective and regular communication at all levels reinforces the message that ecology management issues are taken seriously and that the BOMP has the active support of the environmental manager.

Implicit in the effective management of biodiversity outcomes of all areas where BRL operates is the allocation of responsibilities to key individuals. Details of roles and responsibilities associated with this BOMP are provided in Table 9 below.

The BPCP Induction Package, induction process and regular training will encourage environmental awareness of all staff, employees and contractors.

Table 9 Responsible Personnel and Tasks

Position	Accountable Task
BRL General Manager	• Provide adequate resources for the implementation of this BOMP.
BRL Environmental Manager	• Be responsible for supporting the implementation of the requirements of this BOMP and communicating any issues to the Management Team; • Facilitate any actions required as part of the BOMP • Report on Biodiversity Outcome Monitoring as part of the EMS Management Review Process to the Buller Plateaux Management Team; • Address the external reporting requirements of the plan and manage the Annual Monitoring Report and Annual Work Plan process; • Oversee corrective actions, as required, to address non-compliance and the reporting thereof to approval authorities; and • Ensure Biodiversity outcome monitoring is conducted, recorded and communicated as per the requirements of this plan. • Co-ordinate training of the employees and contractors with regards to their responsibilities in relation to this BOMP.
Managers / Supervisors	• Ensure the instruction of workers, implementation and overseeing of the requirements of this BOMP, including monitoring the effectiveness of the methods set out in this plan.
Contractors/Consultants/Workers	• Ensure all personnel are fully trained and aware of relevant requirements under this BOMP; and • Undertake work practices that comply with the BOMP.

7.0 Management Plan Approval and Revision

Any proposed changes to this BOMP will be confirmed in writing by the approval holder following consultation with Buller District Council, West Coast Regional Council, Ngāti Waewae/Te Runanga o Ngāti Waewae and the Department of Conservation. Any changes will be approved in writing by the listed parties acting in a technical certification capacity, prior to the implementation of these changes.

7.1 Change Register

This BOMP is issued, revised, and amended under authorisation of the CEO.

A copy will be stored electronically with access available to all workers. The signed hard copy will be maintained in the Wellington document library.

Reasons for making changes will be documented and recorded in the document management table, refer to Table 10. A copy of the original document and subsequent versions will be kept for records and marked as obsolete. Each new/updated version will be issued with a version number and date to eliminate obsolete documentation being used.

Table 10 Document management

Document Management:			
Regulatory Approvals Authorities:			
Document Owner:			
Document Owner Name:			
GM HSEC Approval Signature:			
Date:			
Document Approver:			
CEO Name:			
CEO Signature:			
Date Approved:			
Revision History:			
Date	**Version No.**	**Lead Author**	**Contributing Authors**
Version No.:	**Detail / Changes:**		
Next Planned Review:			

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Attachment 1: Summary of Commitments

Record	Commitment	Section Reference

Commitments will be inserted upon issue of the final decision.

Appendix A. Figures

Projection: NZGD 2000 New Zealand Transverse Mercator

This plan has been prepared by MapHouse on the specific instructions of our Client. It is solely for our Client's use in accordance with the agreed scope of work. Any use or reliance by a third party is at that party's own risk. Where information has been supplied by the Client or obtained from other external sources, it has been assumed that it is accurate. No liability or responsibility is accepted by MapHouse for any errors or omissions to the extent that they arise from inaccurate information provided by the Client or any external source.

MT. AUGUSTUS
14.6HA

WHIRLWIND
RISE
694.5HA

Birchfield

Jones Creek
Reserve

Waimangaroa River

Denniston
Reserve

Denniston

DENNISTON
NORTH
47.3HA

Burnetts Face

COALBROOKDALE
154.3HA

Pest exclusion fenced areas

BATHURST PEST CONTROL

Plan prepared for Alliance Ecology | 24 March 2026

Alliance Ecology™ MapHouse

LEGEND

- Pest exclusion fence
- Disturbance area

0 500 m

1:40,000 @ A3

Data Sources: Alliance Ecology, Eagle Technology, LINZ, StatsNZ, NIWA, Natural Earth, © OpenStreetMap contributors., Eagle Technology, LINZ

Figure 1

Projection: NZGD 2000 New Zealand Transverse Mercator

DENNISTON
NORTH
47.32HA

COALBROOKDALE
154.3HA

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Exclusion Fences: Denniston North

BATHURST PEST CONTROL AND MANAGEMENT

Plan prepared for Alliance Ecology | 24 March 2026

Alliance Ecology™ MapHouse

LEGEND

Pest exclusion fence

0 100 m

1:6,000 @ A3

Data Sources: Alliance Ecology, Eagle Technology, LINZ

Map 1A

Projection: NZGD 2000 New Zealand Transverse Mercator

COALBROOKDALE
154.3HA

This plan has been prepared by MapHouse on the specific instructions of our Client. It is solely for our Client's use in accordance with the agreed scope of work. Any use or reliance by a third party is at that party's own risk. Where information has been supplied by the Client or obtained from other external sources, it has been assumed that it is accurate. No liability or responsibility is accepted by MapHouse for any errors or omissions to the extent that they arise from inaccurate information provided by the Client or any external source.

Exclusion Fences: Coalbrookdale

BATHURST PEST CONTROL AND MANAGEMENT

Plan prepared for Alliance Ecology | 24 March 2026

Alliance Ecology™ MapHouse

LEGEND

Pest exclusion fence

0 100 m

1:7,000 @ A3

Map 1B

Data Sources: Alliance Ecology, Eagle Technology, LINZ

Projection: NZGD 2000 New Zealand Transverse Mercator

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WHIRLWIND
RISE
694.54HA

Exclusion Fences: Whirlwind Rise

BATHURST PEST CONTROL AND MANAGEMENT

Plan prepared for Alliance Ecology | 24 March 2026

Alliance Ecology™ MapHouse

LEGEND

Pest exclusion fence

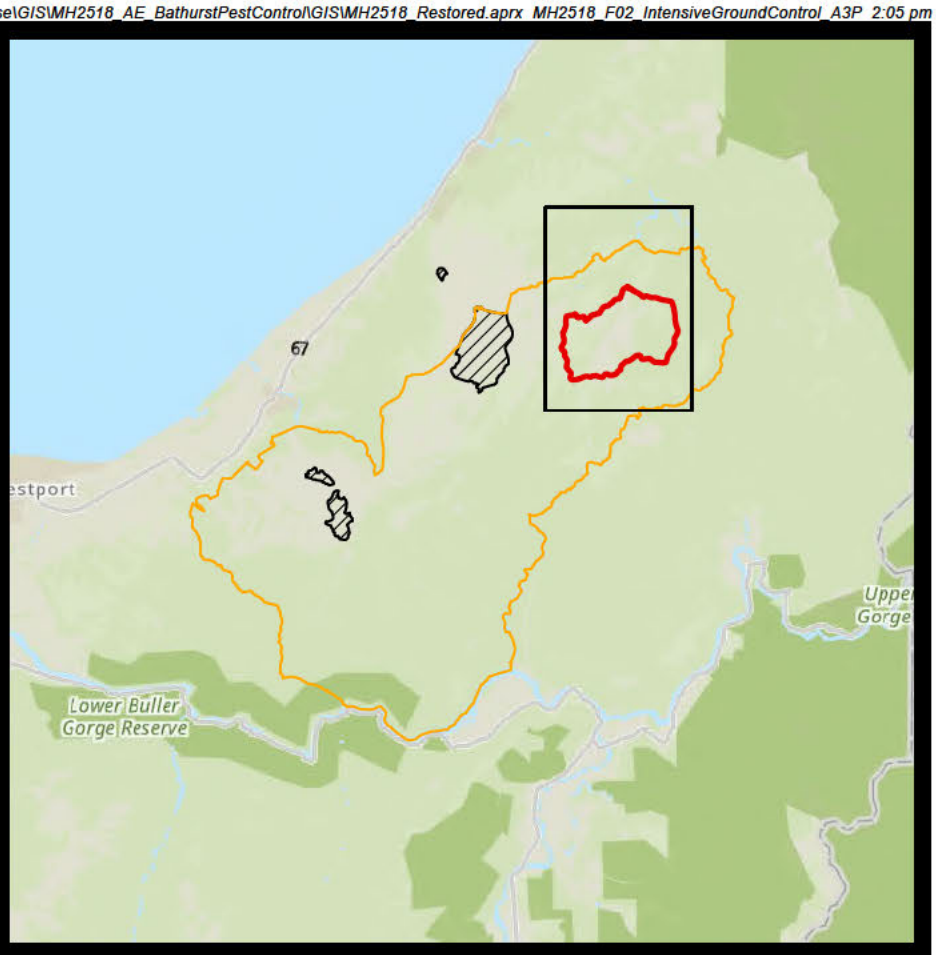
0 200 m

1:12,000 @ A3

Map 1D

Data Sources: Alliance Ecology, Eagle Technology, LINZ

Projection: NZGD 2000 New Zealand Transverse Mercator



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Blackburn-Pakihi – Intensive Ground-Control Area

BATHURST PEST CONTROL

Plan prepared for Alliance Ecology | 24 March 2026

Alliance Ecology™ MapHouse

LEGEND

Intensive ground control area

0 500 m

1:25,000 @ A3

Data Sources: Alliance Ecology, West Coast Regional Council, Eagle Technology, LINZ, StatsNZ, NIWA, Natural Earth, © OpenStreetMap contributors., Eagle Technology, LINZ, Eagle Technology, LINZ, StatsNZ, NIWA, Natural Earth, © OpenStreetMap contributors.

Figure 2

Projection: NZGD 2000 New Zealand Transverse Mercator

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Buller Plateau – Weed management area

BATHURST PEST CONTROL

Plan prepared for Alliance Ecology | 24 March 2026

Alliance Ecology™ MapHouse

LEGEND

- Weed management area
- Blackburn-pakihi intensive ground control area
- Disturbance area

0 1,000 m

1:80,000 @ A3

Data Sources: Alliance Ecology, Eagle Technology, LINZ, StatsNZ, NIWA, Natural Earth, © OpenStreetMap contributors., Eagle Technology, LINZ

Figure 3

Projection: NZGD 2000 New Zealand Transverse Mercator

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Mt. Augustus

Whirlwind Rise

Intensive Ground Control

Denniston North

Coalbrookdale

Wider managed landscape - Control Halo

BATHURST PEST CONTROL

Plan prepared for Alliance Ecology | 24 March 2026

Alliance Ecology™ MapHouse

LEGEND

- Landscape scale control
- Intensive ground control
- Pest exclusion fences
- Existing control maintained
- Project footprint
- Disturbance area

0 1,000 m

1:100,000 @ A3

Data Sources: Alliance Ecology, Eagle Technology, LINZ

Figure 4