MATAKANUI

GOLD LIMITED

Bendigo-Ophir Gold Project
Mammalian Pest Management Plan

June ~~October~~ 2026~~5~~

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Glossary

Specific terms	
AMP	Avifauna Management Plan
ARP	Applied Research Plan for Cushionfields and Spring Annuals
ARAMP	Ardgour Restoration Area Management Plan
BEWMP	Biosecurity and Ecological Weed Management Plan
BOGP	Bendigo-Ophir Gold Project ('the Project')
BOMP	Biodiversity Outcome Monitoring Plan
CCI	Chew Card Index
CIT	Come in Time gold deposit
CTCI	Camera Trap Catch Index
CODC	Central Otago District Council
DDF	Direct disturbance footprint
DOC	Department of Conservation
ELF	Engineered landform
ESC	Erosion and Sediment Control
ESCP	Erosion and Sediment Control Plan
HIMP	Habitat Impact Management Plan
LEMP	Landscape and Ecology Management Plan
LERMP	Landscape and Ecological Rehabilitation Management Plan
LMP	Lizard Management Plan
MGL	Matakanui Gold Limited
MPMP	Mammalian Pest Control Management Plan
MSMP	Matakanui Sanctuary Management Plan
NZTCS	New Zealand Threat Classification System
ORC	Otago Regional Council
RAS	Rise and Shine gold deposit
RMA	Resource Management Act
RPMP	Otago Regional Pest Management Plan
SRE	Srex East gold deposit
SRX	Srex gold deposit
TIMP	Terrestrial Invertebrate Management Plan
TLF	Tailings Storage Facility

TTI	Tracking Tunnel Index

1. INTRODUCTION

1.1. Bendigo-Ophir Gold Project

Matakanui Gold Limited (MGL) proposes the Bendigo-Ophir Gold Project (BOGP), a new gold mine on Bendigo and Ardgour Stations in Central Otago's Dunstan Mountains, approximately 20 km north of Cromwell. The project will mine four deposits (Rise and Shine (RAS), Come in Time (CIT), Srex (SRXE), and Srex East (SRE)) using open pit and underground methods, with most operations in Shepherds Valley and administration facilities on Ardgour.

1.2. Purpose and scope

The Mammalian Pest Management Plan (MPMP) plan sets out the full suite of methods that will be used to monitor and control mammalian pests across approximately 2,400 hectares of mining, rehabilitation and ecological enhancement areas across the BOGP.

This plan provides operational procedures and methodologies to implement mammalian pest control objectives of several key BOGP ecological management plans. Each plan has a distinct focus area but relies on the MPMP for practical implementation., Tthe key plans area theare:

- Landscape and Ecological Rehabilitation Management Plan (LERMP)
- Ardgour Restoration Area Management Plan (ARAMP)
- Matakanui Sanctuary Management Plan (MSMP)
- Applied Research Plan for Cushionfields and Spring Annuals (ARP)
- Terrestrial Invertebrate Management Plan (TIMP)
- Lizard Management Plan (LMP)
- Avifauna Management Plan (AMP)

Management of mammalian pests within predator proof sanctuary boundaries are detailed in the Matakanui Sanctuary Management Plan (MSMP).

1.2.1. Compliance with legislation

This MPMP ensures compliance with all legal requirements for pest management at the BOGP site. It covers the pest control requirements from permits granted under the Fast Track Approvals Act and ensures all site activities meet legal conditions and regional rules.

In this plan, 'mammalian pest' means any mammal species on the BOGP site that damages the environment or hinders restoration goals. Some of these animals may be officially listed as pests in the Regional Pest Management Plan for Otago (RPMP), but all need to be controlled to achieve successful site restoration.

Currently, rabbits are the only animals on the BOGP site that are officially listed as pests in the RPMP. For rabbits, ~~we must~~the RPMP requires:

- ~~Carry out~~ Oongoing control programmes to be carried out
- RKeep rabbit numbers to be kept at or below set levels

The RPMP rules that apply to this site are included in Appendix A and built into how we will implement this plan.

1.3. Key Objectives

The key objectives for mammalian pest management across the BOGP site are to:

- Ensure compliance with all legislation and resource consent requirements relating to mammalian pest management.
- Support ecological management programmes across the BOGP site and Ardgour Restoration Area.
-
- Significantly reduce mammalian pest populations in areas of the BOGP site outside the Matakanui Predator Proof Sanctuaries.
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1.4. Roles and Responsibilities

Matakanui Gold Ltd will establish a governance structure (Figure 1) to ensure oversight and long-term management of mammalian pest control across the BOGP. A dedicated Environmental Manager ~~Manager position will be created through a formal contract to~~ provides day-to-day operational leadership and implementation of this Mammalian Pest Management Plan.

~~The Environmental Manager will be supported by a Technical Advisory Group of selected experts in conservation, ecology, and pest management. The group will provide technical guidance on control operations, compliance with pest management requirements, and ongoing monitoring, without the administrative burden of a full governance board.~~

Technical expertise is provided by both in-house and consultant technical experts, as necessary, to meet the objectives of the ecological program.

Matakanui Gold Ltd will maintain ultimate responsibility for the project while delegating operational authority to the Environmental Manager. This governance approach balances professional management with expert guidance, ensuring both practical implementation and technical excellence in achieving the project's mammalian pest control and broader ecological restoration objectives.

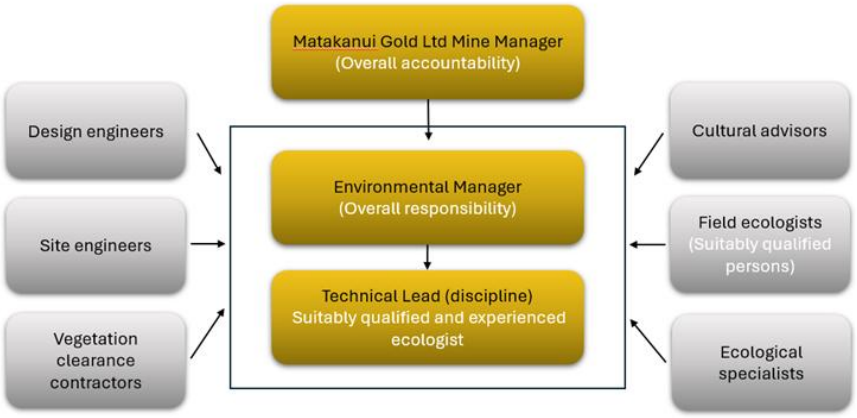

Figure 1: Proposed Governance structure for ecological work at the Bendigo-Ophir Gold Project.

1.5. Resource Consent Conditions for MPMP

The project resource consent conditions set out the requirements for the content of this MPMP. The table below identifies the key resource consent conditions relevant to MPMP and identify where they are addressed in this document.

[Placeholder: Additional conditions relating to the application of mātauranga Māori and exercise of kaitiakitanga.]

Table 1 Draft resource consent conditions relevant to the MSMP. [PLACEHOLDER].

Condition number	Condition text	Relevant MPMP Section
C74	The consent holder must implement the Mammalian Pest Management Plan ("MPMP") certified as part of the approval of the BOGP pursuant to Section 81 of the Fast-track Approvals Act 2024 (or as amended in	All

Condition number	Condition text	Relevant MPMP Section
	accordance with relevant conditions), and which forms part of the consents. The objective of the MPMP is to provide a full suite of methods to monitor, control and reduce the impacts of mammalian pests within operational, rehabilitation and ecological enhancement areas across the BOGP Consent Area, including to: a. Ensure compliance with relevant legislation and consent requirements relating to mammalian pest management; b. Support ecological management programmes across the project and the Ardgour Restoration Area; and c. Reduce mammalian pest populations in project areas outside the Bendigo and Ardgour Sanctuaries (collectively referred to as the Matakanui Sanctuaries).	
C75	To achieve the objective set out in Condition C74 above, the MPMP must, as a minimum: a. Identify mammalian pest target species and their programme objectives; b. Identify control zones, including: i) Aerial baiting zone, involving periodic aerial operations targeting possums and/or rabbits (noting that public notification is required 48 hours prior to aerial operations); ii) Ungulate control zone, involving deer, goat and pig control; iii) Lagomorph ground control zone, involving ground control of rabbits for Otago Regional Pest Management Plan ("RPMP") compliance;	Section 3, Section 4, Section 5, Section 6, Section 8, Section 9

Condition number	Condition text	Relevant MPMP Section
	iv) Predator network control zone, involving cat, mustelids and hedgehog control; v) Possum ground control zone, involving ground control of possums; and vi) Rat control zone, involving monitoring-based approach with triggered control implementation. c. Identify control methods and implementation requirements; d. Monitoring requirements; e. Data management and reporting requirements; and f. Compliance monitoring and reporting, and adaptive management.	
C76	The Consent Holder must undertake monitoring in accordance with the certified MPMP, including the monitoring type and timing, targets and thresholds for additional control described in **Attachment C**.	Section 5
C77	An annual Mammalian Pest Management Plan Report must be prepared, as part of the Annual Monitoring and Compliance Report required by Condition C12, and must include: a. Control programme summaries including dates, methods used, spatial coverage by zone and annotated maps of control device placement; b. Analysis of catch statistics, camera trap and indicator indices, toxic operation outcomes and year-on-year performance comparisons and evaluation of progress against ecological targets, and overview of ecological trends including native species response and habitat improvements; c. Forward planning sections that detail adjustments to control strategy / adaptive management (if applicable), monitoring schedule and resource allocation, proposed trials and threshold revisions (if applicable).	Section 9.1

Condition number	Condition text	Relevant MPMP Section
C78	All reports prepared under the MPMP must be made available to Central Otago District Council on request.	Section 9

2. CONTROL FRAMEWORK

This MPMP covers pest control across all BOGP areas except fenced sanctuaries, which are managed under ~~separate~~ the MSMP protocols. The plan represents additional obligations beyond existing requirements and uses landscape-scale approaches that scale effort according to target species threat levels, implementing broad scale control for general protection and ecological uplift in rehabilitation/regeneration areas.

Control areas amalgamate ARAMP and LERMP management units into specific zones based on similar control objectives, ecological sensitivity, and operational requirements.

2.1. Pest management Zones

Six operational pest management zones cover the BOGP site (Table 2)~~, amalgamating ARAMP and LERMP management units based on shared control objectives, ecological sensitivity, and operational requirements~~. Each zone is designed to deliver measurable outcomes through integrated implementation across multiple management plans (ARAMP, LERMP, TIMP, etc.) with defined success metrics. These zones are:

- **Aerial Baiting Zone** (2,672 ha): Three-yearly aerial operations targeting possums and rabbits.
- **Ungulate Control Zone** (2,493 ha): Helicopter-based shooting for deer, goat, and pig control.
- **Lagomorph Ground Control Zone** (1,791 ha): Quarterly ground shooting for RPMP compliance.
- **Predator Network Control Zone** (1,112 ha): Trap network for cats, mustelids, and hedgehogs.
- **Possum Ground Control Zone** (2,672 ha): Performance-based ground control supplementing aerial operations.
- ~~**Rat** **Rodent** **Control Zone** (Ardgour Restoration Area LMU 1&4): Monitoring-based approach with triggered control implementation.~~
- **Targeted rock stack control zone** (western engineered landform - WELF): half of the initial manufactured rock stacks will have rodent control and monitoring to determine if these structures are acting as refuges for mice.

Mouse monitoring and control were the subject of considerable discussion during the consent process. The MPMP is directed at achieving the outcomes of the ARAMP, LERMP, LMP, AMP, and TIMP, none of which currently indicate that mouse control is

necessary to meet their objectives. For this reason, there is no dedicated mouse control zone other than the targeted rock stack control zone described below.

Table 22~~1~~: MPMP Landscape Control Zones

Control Zone	Primary Integration Function	Key Supported Plans & Documents	Critical Success Metrics
Aerial Baiting Zone	Landscape-scale protection for restoration plantings and ecosystem recovery	ARAMP and LERMP	Achieve revegetation survival targets of ARAMP and LERMP
Ungulate Control Zone	Prevent browse damage and habitat degradation across all restoration areas	ARAMP, LERMP and ARP	~~>~~<5 ungulate detections per six-month period, achieve browse damage targets of ARAMP and LERMP
Lagomorph Ground Control Zone	RPMP compliance and protection of restoration investments	ARAMP, LERMP, RPMP requirements	≤3 Modified McLean Scale, meeting seedling survival and recruitment targets set by ARAMP and LERMP
Predator Network Control Zone	Continuous protection for native fauna supporting ecosystem functions	TIMP, LIMP, AMP, ecosystem restoration	<3 detections/2000 CH, achieve targets of LMP, AMP and TMP
Possum Ground Control Zone	Targeted protection for high-value restoration and research areas	LERMP, ARAMP, ARP research plots	≤6% CCI, research plot integrity maintained
~~**Rat**~~ **Rodent Control Zone**	Forest protection during critical establishment phases	ARAMP	Achieve monitoring thresholds, bird predation and forest establishment thresholds of ARAMP
~~**Rodent** **Targeted Rock Stack Control Zone**~~	~~Lizard and forest protection~~ Lizard and invertebrate protection in manufactured rock stacks	~~ARAMP and~~ LERMP	<305% ~~TTI, achieve targets in LMP and TIMP~~Occupancy ~~Support lizard populations when other pest species are removed~~

2.2. Coordination and scheduling

Some pest control activities need to be planned ahead of time to avoid conflicts with other work on site (Table 3~~Table 2~~). ~~to make sure pest control are achieved while not interfering with other goals.~~

A detailed integration matrix and coordination protocols are provided in Appendix B.

Table 332: Summary of integration coordination between Management Plans, identifying key timeframes for communication.

Activity Type	Coordination Required	Lead Responsibility
Species Relocation Operations	Timing to ensure pests are controlled before relocation	Technical Lead (discipline of relocation)
Rehabilitation - LERMP	Pre-planting or transfer pest suppression	Technical Lead (Mine Rehabilitation)
Restoration - LERMP	Pre-planting pest suppression	Technical Lead (Mine Rehabilitation)
Restoration - ARAMP	Pre-planting pest suppression	Technical Lead (Ardgour uplift)
Research Activities	Plot protection and minimal disturbance protocols	ARP programme Manager
Sanctuary Operations	Timing coordination to maximise resources	Project Ecologist

3. TARGET SPECIES OVERVIEW AND OBJECTIVES

This section describes the 14~~2~~ mammalian pest species that will be actively managed at the BOGP site. Each species profile uses the same format to cover their ecological impacts, current status on site, management goals, and how success will be measured.

3.1. Feral cats (*Felis catus*)

3.1.1. Description and impacts

RPMP Pest Status: Not listed for the area

Feral cats are small-bodied carnivorous mammals (2-7kg as adults) with variable coat colours and widely varying home range sizes from 9 to over 3,000 ha (Nottingham et al. 2021). As opportunistic generalist predators, feral cats inflict considerable harm on native New Zealand fauna through direct predation (Bruce et al. 2019, Jones 2008).

Despite not being designated as a pest species under the Regional Pest Management Plan (RPMP) for this area, feral cats present critical threats to BOGP conservation outcomes through:

- Predation on native birds and their eggs (Dowding and Murphy 2001, Morgan et al. 2011)
- Consumption of native lizards (Habitat NZ 2025) (i.e., a single cat captured seventeen southern grass skinks (Hayward 2020))
- Predation on native invertebrates (Habitat NZ 2025, Jones 2008, Murphy et al. 2004)
- Disease transmission to humans and wildlife, including toxoplasmosis causing documented deaths of marine mammals and native birds (Roe et al. 2013, French et al. 2020)

3.1.2. Baseline survey presence

Feral cats were detected throughout the BOGP site via camera trapping at an average of 1.1 detections/2000 CH (camera hours), with similar presence across both survey zones. eDNA analysis confirmed feral cats had consumed native and at-risk skinks.

3.1.3. Programme objectives and management targets

The programme aims to achieve sustained population suppression of feral cats across key BOGP areas to protect indigenous and vulnerable wildlife including birds, lizards and invertebrates. The MPMP focuses on maintaining low cat densities across broader areas through continuous trapping networks (Table 4~~Table 3~~).

Table 4~~3~~. Overview of feral cat management across the BOGP

Attribute	Landscape management
Control zone	Predator network
Control method	Continuous kill trap network (Weekly checks from January to May and monthly checks from June to December)
Monitoring method	Quarterly camera trap monitoring (February, May, August and November)
Success criteria	<2 detections per 2000 Camera Hours (CH)
Trigger threshold for additional control	>3 detections per 2000 CH

3.2. Feral deer (*Dama dama* and *Cervus elaphus*)

3.2.1. Description and impacts

RPMP Pest Status: not listed for the area

While there are many species of deer in New Zealand, only fallow deer (*Dama dama*) and red deer (*Cervus elaphus*) have been documented on or near the BOGP site (Habitat NZ~~Ltd~~ 2025). Feral deer cause multiple impacts on native ecosystems through various mechanisms such as:

- Direct browsing on native foliage (Bee et al. 2007, Heckel et al. 2010, Husheer and Frampton 2005)
- Bark stripping for nutrients (White 2019)
- Soil compaction from trampling (Heckel et al. 2010)
- Weed dispersal through faeces (Claridge et al. 2016)
- Disease transmission including bovine tuberculosis (Nugent 2005).

3.2.2. Baseline survey presence

Feral deer (fallow deer) were confirmed present with 20 individuals detected during aerial surveys. The largest herd of 18 was found within Ardgour Station along with smaller herds nearby.

3.2.3. Programme objectives

Table 5~~Table 4~~ provides an overview of management measures and criteria for feral deer population control across the BOGP site, to achieve the following outcomes:

- Enhance vegetation values and protect indigenous species

- Prevent vegetation and habitat damage from browsing feral deer activities.

Table 554. Overview of feral deer management across the BOGP.

Attribute	Landscape management
Control zone	Ungulate control zone
Control method	Aerial and ground-based shooting (Scheduled control biannually in Year 1, annually thereafter, reactionary control as required)
Monitoring method	Annual camera trap monitoring (November – December) and ~~+~~ad hoc monitoring for signs and damage
Success criteria	Zero detections on camera traps and no reported signs
Trigger threshold for additional control	>2 detections within a 3-week period

3.3. Feral goats (*Capra circus*)

3.3.1. Description and impacts

RPMP Pest Status: Not listed for the area

Feral goats are versatile generalist herbivores weighing 25-55kg with wide-ranging diets (Chynoweth et al. 2013). Despite dietary flexibility, they show preferential browsing that significantly impacts native vegetation composition and regeneration (Adkins 2012). Feral goats can impact ecosystems through:

- Browsing and trampling of native plants (Chynoweth et al. 2013)
- Soil modification and erosion acceleration (Cowan 2016)
- Competition with native herbivores for resources (Chynoweth et al. 2013)
- Habitat modification over time (Campbell and Rudge 1984)
- Decline in native fauna populations (Chynoweth et al. 2013).

3.3.2. Baseline survey presence

Feral goats were detected during aerial surveys with 31 individuals recorded in multiple groups of 3-9 animals. They were primarily located on Ardgour Station and adjacent DOC land.

3.3.3. Programme objectives

The programme aims to achieve control of feral goats across the BOGP landscape to enhance vegetation values, protect indigenous species and prevent habitat modification (Table 6~~Table 5~~).

Table ~~6~~6~~5~~. Overview of feral goat management across the BOGP.

Attribute	Landscape management
Control zone	Ungulate control zone
Control method	Aerial and ground-based shooting (Scheduled control biannually in Year 1, annually thereafter, reactionary control as required)
Monitoring method	Annual camera trap monitoring (November – December) and~~+~~ ad hoc monitoring for signs and damage
Success criteria	Zero detections on camera traps and no reported signs
Trigger threshold for additional control	>2 detections within a 3-week period

3.4. Feral pigs (*Sus scrofa*)

3.4.1. Description and impacts

RPMP Pest Status: Not listed for the area

Feral pigs are omnivorous species with high reproductive rates enabling rapid recolonisation following control efforts (Massei et al. 2011). They maintain home ranges of up to 10km^2 and can cause extensive ecological damage (Barber 2004). Some of the main impacts of feral pig populations includes:

- Vegetation uprooting and soil disturbance through foraging behaviour
- Predation on native invertebrates including threatened species (McLennan et al. 1984, Parkes et al. 2015)
- Disease transmission including bovine tuberculosis (Nugent et al. 2003)
- Habitat modification through wallowing and rooting activities.

3.4.2. Baseline survey presence

Feral pigs were present but at low densities, detected on only three of 14 camera trap lines and absent from aerial surveys. However, a total of 13 feral pigs from several

sounders were sighted. ~~and collected for~~ eDNA was collected for diet analysis from various areas adjacent to the BOGP.

3.4.3. Programme objectives

The programme aims to achieve control of feral goats across the BOGP landscape to enhance vegetation values, protect indigenous species and prevent ecological degradation from feral pig activities (Table 7~~Table 6~~).

Table 7~~6~~. Overview of feral pig management across the BOGP.

Attribute	Landscape management
Control zone	Ungulate control zone
Control method	Aerial and ground-based shooting (Scheduled control biannually in Year 1, annually thereafter, reactionary control as required)
Monitoring method	Annual camera trap monitoring (November – December) and~~+~~ ad hoc monitoring for signs and damage
Success criteria	Zero detections on camera traps and no reported signs
Trigger threshold for additional control	>2 detections within a 3-week period

3.5. Lagomorphs (*Oryctolagus cuniculus* and *Lepus europaeus occidentalis*)

3.5.1. Description and impacts

RPMP Pest Status: Pest

Lagomorphs comprise rabbits (*Oryctolagus cuniculus*) and hares (*Lepus europaeus occidentalis*), both small terrestrial herbivorous mammals with different ecological impacts. Rabbits prefer open areas with adjacent cover, while hares live above ground in depressions (National Pest Control Agencies 2015) and can impact native environments through:

- Direct browsing of shrub foliage and ring-barking of native trees (Norbury 1996)
- Soil disturbance increasing weed invasion risk (Eldridge and Simpson 2002)
- Severe impacts on planted trees and shrubs, with survival rates correlating negatively with rabbit density (Forsyth et al. 2015)

- **Positive impacts:** At low levels, rabbit browsing can benefit some conservation outcomes including kanuka regeneration and wetland weed control (Norbury 1996).

3.5.2. Baseline survey presence

Both rabbits and hares were observed across the entirety of the BOGP with no areas suspected to be rabbit-free. Burrows, rabbit droppings and vegetation damage was noted across many areas. Rabbits were generally detected at low levels across most of the surveyed landscape, with 92% of survey lines having an average Modified McLean Scale of 3 or less. These results were expected given the landscape aerial poison operation conducted in winter 2023.

3.5.3. Programme objectives

The MPMP aims to implement differentiated lagomorph management strategies balancing vegetation protection and ecosystem requirements to:

- Maintain compliance with Otago RPMP requirements for rabbits
- Reduce competition with native species
- Prevent vegetation damage across the majority of the BOGP
- Implement minimal control strategy in cushionfield habitats where rabbit browsing helps maintain threatened ecosystems (as described in the ARP).

Table 8~~8~~7. Overview of lagomorph management across the BOGP.

Attribute	Landscape management
Control zone	Aerial baiting zone + Lagomorph ground control zone
Control method	Three-yearly aerial baiting (late summer or winter) and quarterly ground-based shooting
Monitoring method	Modified McClean Scale (April and October)
Success criteria	≤3 on the Modified McClean Scale
Trigger threshold for additional control	>3 on the Modified McClean Scale

3.6. Hedgehogs (*Erinaceus europaeus*)

3.6.1. Description and impacts

RPMP Pest Status: Not listed for the area

Hedgehogs are small insectivorous mammals with spiny coats, operating as solo foragers with home ranges between 2 to over 100 ha (Moss and Sanders 2001). They

enter torpor during winter (below 10°C), making control interactions highest in spring, summer, and autumn. The impacts of hedgehogs include:

- Predation on native invertebrates (Jones *et al.* 2005), particularly coleoptera and wētā (Hendra 1999, Jones et al. 2005)
- Predation on ground-nesting birds (Dowding and Murphy 2001)
- Predation on mice, lizards, frogs, and carrion (Jones *et al*. 2005)
- Disease transmission including tuberculosis (Lugton *et al.* 1995) and the causative agent for toxoplasmosis (Riley and Chomel 2005), potentially affecting people and native birds.

3.6.2. Baseline survey presence

Hedgehogs are present across the entire BOGP and were detected on every camera trap line with an average of 5.4 detections/2000 CH. Hedgehog eDNA diet analysis showed consumption of native skinks and various invertebrates.

3.6.3. Programme objectives

The management programme (Table 9~~Table 8~~) aims to reduce hedgehog population density in key restoration areas within the BOGP to reduce pressure and minimise predation on vulnerable native fauna including native ground-nesting birds, lizards and invertebrates.

Table ~~9~~9~~8~~. Overview of hedgehog management across the BOGP.

Attribute	Landscape management
Control zone	Predator network
Control method	Continuous kill trap network (Weekly checks from January to May and monthly checks from June to December)
Monitoring method	Quarterly camera trap monitoring (February, May, August and November)
Success criteria	<3 detections per 2000 CH
Trigger threshold for additional control	>6 detections per 2000 CH

3.7. Mustelids (*Mustela putorius furo, M. erminea* and *M. nivalis*)

3.7.1. Description and impacts

RPMP Pest Status: not listed for the area

Three mustelid species are present within the BOGP landscape, the largest being ferrets (*Mustela putorius furo*) at 600-1,300g, followed by stoats (*M. erminea*) at 200-350g, and weasels (*M. nivalis*) at only 60-120g. Each species has distinct habitat preferences and home range sizes, with ferrets favouring grazed areas, stoats avoiding open spaces, and weasels following mouse populations. Mustelid species can impact native ecosystems through:

- Significant predation on native birds, particularly ground-nesting species (Dowding and Murphy 2001)
- Predation on native lizards (Habitat NZ 2025), with ferrets switching to skinks following lagomorph decline (Norbury 2001)
- Consumption of native frogs and invertebrates (Egeter *et al.* 2015)
- Predation impacts easily underestimated, particularly for stoats (Little et al. 2017).

3.7.2. Baseline survey presence

All three species of mustelids were detected across the BOGP landscape using camera trap surveys. Ferrets had the highest detection rate at an average of 5.72 detections/2000 CH with stoats and weasels detected at much lower rates. Multiple ferrets were found to have consumed native skinks through eDNA diet analysis and dissection.

3.7.3. Programme objectives

The programme (Table 10~~Table 9~~) aims to achieve sustained population suppression across the BOGP to reduce predation pressure on native fauna including native ground-nesting birds, lizards and invertebrates.

Table 10~~10~~9. Overview of mustelid management across the BOGP.

Attribute	Landscape management
Control zone	Predator network
Control method	Continuous kill trap network (Weekly checks from January to May and monthly checks from June to December)
Monitoring method	Quarterly camera trap monitoring (February, May, August and November)
Success criteria	<3 detections per 2000 CH
Trigger threshold for additional control	>5 detections per 2000 CH

3.8. Possums (*Trichosurus vulpecula*)

3.8.1. Description and impacts

RPMP Pest Status: Not listed for the area

Possums are small marsupials (1.4-6.4kg) with omnivorous diets heavily focused on native foliage, seeds, and fruit. Their sequential browsing behaviour causes significant localized impacts on vegetation (Nugent et al. 1997) including impacts such as:

- Defoliation of native forests and impacts on threatened plant species (Payton 2003, Sadleir 2003)
- Disruption of seedling establishment through seed and fruit consumption (Wilson et al. 2003)
- Competition with native birds for food resources (Nugent et al. 1997).

3.8.2. Baseline survey presence

Possums were detected across almost all chewcard survey lines with an average chewcard index (CCI) of 28%. eDNA diet analyses showed possums had eaten a variety of plants and~~,~~ invertebrates, with ~~and~~ a smaller proportion ~~of them had~~ consuming birds (Habitat NZ 2025).

3.8.3. Programme objectives

The programme (Table 11~~Table 10~~) aims to maintain possum populations at levels that minimise impacts on restoration activities and native fauna to:

- Prevent excessive damage to rehabilitation and restoration plantings
- Support successful ecosystem restoration outcomes.

Table 11~~11~~~~10~~. Overview of possum management across the BOGP.

Attribute	Landscape management
Control zone	Aerial baiting zone + Possum ground control zone
Control method	Three-yearly aerial baiting (Late Summer or Winter) and a ~~A~~nnual performance based ground control (late summer or winter in years aerial control not undertaken)
Monitoring method	Quarterly chewcard monitoring (May and November)
Success criteria	≤6% CCI ~~(chewcard index)~~
Trigger threshold for additional control	>6% CCI

3.9. Rats (*Rattus rattus* and *R. norvegicus*)

3.9.1. Description and impacts

RPMP Pest Status: not listed for the area

Two rat species may be present within the BOGP landscape: ship rats (*R.rattus*) and Norway rats (*R. norvegicus*). Both are generalist omnivores with wide-ranging diets, though they ~~partition~~ differ in habitat use, with ship rats preferring indigenous forest and Norway rats favouring damp micro-habitats. Rats can negatively impact native ecosystems through:

- Heavy predation on native tree seeds and fruit affecting forest regeneration (Sweetapple and Nugent 2007)
- Predation on native invertebrates, lizards, and frogs (Miller and Miller 1995, Knox et al. 2012, Ruscoe *et al.* 2013)
- Consumption of bird eggs and predation on birds ~~themselves~~ (Brown et al. 2008)
- Population increases following control of other pests (Bridgman et al. 2018).

3.9.2. Baseline survey presence

Rats appear to be sparse across the landscape; they were detected on only two chewcard lines with an average chewcard index of 0.9% for the combined BOGP landscape (Habitat NZ 2025). Rats were not detected on any camera trap.

3.9.3. Programme objectives

Implement selective intensive targeted control within high-value areas to protect salvaged lizards and invertebrates after relocation operations and, if required, suppress rat populations in key landscape areas to reduce predation impacts on native species in support of ARAMP objectives (Table 12~~Table 11~~).

Table 12~~11~~11. Overview of rat management across the BOGP.

Attribute	Landscape management
Control zone	~~Rat~~ Rodent control zone (not actively controlled) + Targeted Rock Stack
Control method	Bait stations (only if required) (Pulsed Quarterly January, April, July and October)
Monitoring method	Tracking tunnel monitoring (February, May, August and November)
Success criteria	100% of monitoring activities completed on time with approved methods *(Note: monitoring only*

Attribute	Landscape management
	begins after ARAMP review determines control to be worthwhile)
Trigger threshold for additional control	≥10% TTI (tracking tunnel index)

3.10. Mice (*Mus musculus*)

3.10.1. Description and impacts

House mice (*Mus musculus*) ~~may be~~are present within the BOGP landscape. House mice are generalist omnivores capable of exploiting a wide range of food sources. They tend to be more prevalent on or near the ground, in areas of highest disturbance such as roadsides, sites with low canopy, or dense weedy ground cover (King et al. 1996), making them most likely around rank pasture, young-growth vegetation, and modified landscape plantings. Mice can negatively impact native ecosystems through:

- Predation on seeds affecting plant community composition, and predation on ground-dwelling invertebrates including wētā, caterpillars, spiders, and beetles (Badan 1986, Jones and Toft 2006, Marris 2000, Miller and Webb 2001)
- Predation on native lizards (Norbury et al. 2014)
- Population irruptions following masting events, increasing predation pressure on native species and potentially triggering associated pulses in other predators such as stoats (Choquenot and Ruscoe 2000, Norbury et al. 2013, Wilson and Lee 2010)
- Population increases following control of other pests, particularly ship rats, where their removal can trigger elevated mouse numbers (Ruscoe et al. 2011, Bridgman et al. 2018).

~~King, C.M., Innes, J.G., Flux M., Kimberley, M.O., Leathwick, J.R. and Williams D.S. (1996b). Distribution and abundance of small mammals in relation to habitat in Pureora Forest Park. *New Zealand Journal of Ecology,* 20(2), 215–240~~

~~Badan, D. (1986). Diet of the house mouse (*Mus Musculus L.*) in two pine and kauri forest. *New Zealand Journal of Ecology,* 9, 137–141.~~

~~Jones, C. and Toft, R. (2006). Impacts of mice and hedgehogs on native forest invertebrates: a pilot study. DOC Research & Development Series 245. Department of Conservation, Wellington, New Zealand.~~

~~Marris, J.W.M. (2000). The beetle (Coleoptera) fauna of the Antipodes Islands, with comments on the impact of mice; and an annotated checklist of the insect and arachnid fauna. *Journal of the Royal Society of New Zealand,* 30, 169–195.~~

Miller, A.P. and Webb, P.L. (2001). Diet of house mice (*Mus musculus L.*) on coastal sand dunes, Otago, New Zealand. *New Zealand Journal of Ecology,* 28, 49–55.

Norbury, G., van den Munckhof, M., Neitzel, S., Hutcheon, A., Reardon, J. and Ludwig, K. (2014). Impacts of invasive house mice on post-release survival of translocated lizards. *New Zealand Journal of Ecology,* 38(2), 322–327.

Choquenot, D. and Ruscoe, W. (2000). Mouse population eruptions in New Zealand forests: the role of population density and seedfall. *Journal of Animal Ecology,* 69, 1058-1070.

Norbury, G., Byrom, A., Pech, R., Smith, J., Clarke, D., Anderson, D. and Forrester, G. (2013). Invasive mammals and habitat modification interact to generate unforeseen outcomes for indigenous fauna. *Ecological Applications,* 23(7), 1707–1721.

Wilson, D. J. and Lee, W.G. (2010). Primary and secondary resource pulses in an alpine ecosystem: snow tussock grass (Chionochloa spp.) flowering and house mouse (*Mus musculus*) populations in New Zealand. *Wildlife Research*, 37, 89–103.

Ruscoe, W.A., Ramsey, D.S.L., Pech, R.P., Sweetapple, P.J., Yockney, I., Barron, M.C., Perry, M., Nugent, G., Carran, R., Warne, R., Brausch, C. and Duncan, R.P. (2011). Unexpected consequences of control: competitive vs. predator release in a four-species assemblage of invasive mammals. *Ecology Letters,* 14, 1035–1042.

Bridgman, L., Innes, J., Gillies, C., Fitzgerald, N., Rohan, M. and King, C. (2018). Interactions between ship rats and house mice at Pureora Forest Park. *New Zealand Journal of Zoology,* 45(3), 238–256.

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3.10.2. Baseline survey presence

Mice were present across the landscape; they had an average chewcard index of ~~12.5% in the PSA and 9.2% in the SL, the weighted average for the entire site is~~ 10.1% across the BOGP and were detected on camera traps throughout the survey area (HabitatNZ, 2025). ~~Mice were detected on camera traps throughout the survey area.~~

3.10.3. Programme objectives

Implement selective ~~intensive~~ targeted control within high-value areas to ~~protect salvaged lizards and invertebrates after relocation operations and, if required, suppress mouse populations in key landscape areas to~~ reduce predation impacts on native ~~species~~birds and lizards in support of ARAMP objectives.

Attribute	Landscape management
Control zone	~~Mouse~~~~Mouse control zone (not actively controlled)~~ ~~+~~Targeted Rock Stack
Control method	Bait stations - ~~(only if required)~~ (Pulsed twice~~Quarterly~~~~bi~~ yearly – September/October and February/March) ~~January, April, July and October)~~

Attribute	Landscape management
Monitoring method	~~Tracking tunnel~~Occupancy monitoring (March, May, August, November~~February, May, August and November~~)
Success criteria	<30% Occupancy~~<5% TTI (tracking tunnel index) 100% of monitoring activities completed on time with approved methods *(Note: monitoring only begins after ARAMP review determines control to be worthwhile)*~~
Trigger threshold for additional control	~~≥10XX% TTI~~Nil ~~(tracking tunnel index)~~

4. CONTROL ZONE METHODS AND IMPLEMENTATION

This section details the methodologies and operational requirements for mammalian pest management across the BOGP.

Brief field-ready methodology cards are provided in Appendix C to support practical implementation by contractors and field crews. These cards follow a standardised format, providing color-coded priority methods (preferred, alternative, intensive), essential equipment and personnel requirements, timing considerations, and measurable success criteria for each of the seven control zones. The cards are designed for field use and include critical safety notes, coordination requirements with other zones, and a quick reference matrix enabling efficient resource allocation and operational planning.

4.1. Aerial baiting zone (2,673 ha)

The aerial baiting zone is the largest control area, covering most of the BOGP site except the fenced sanctuaries. This zone reduces target pest populations across large areas and forms the foundation of pest control across the entire site. The zone is divided into two areas (A and B) (Figure 2~~Figure 1~~). Zone A receives treatment during every aerial baiting operation, while Zone B includes only areas where mining or restoration activities are not taking place at the time of treatment. This approach ensures operational separation between pest control and mining activities.

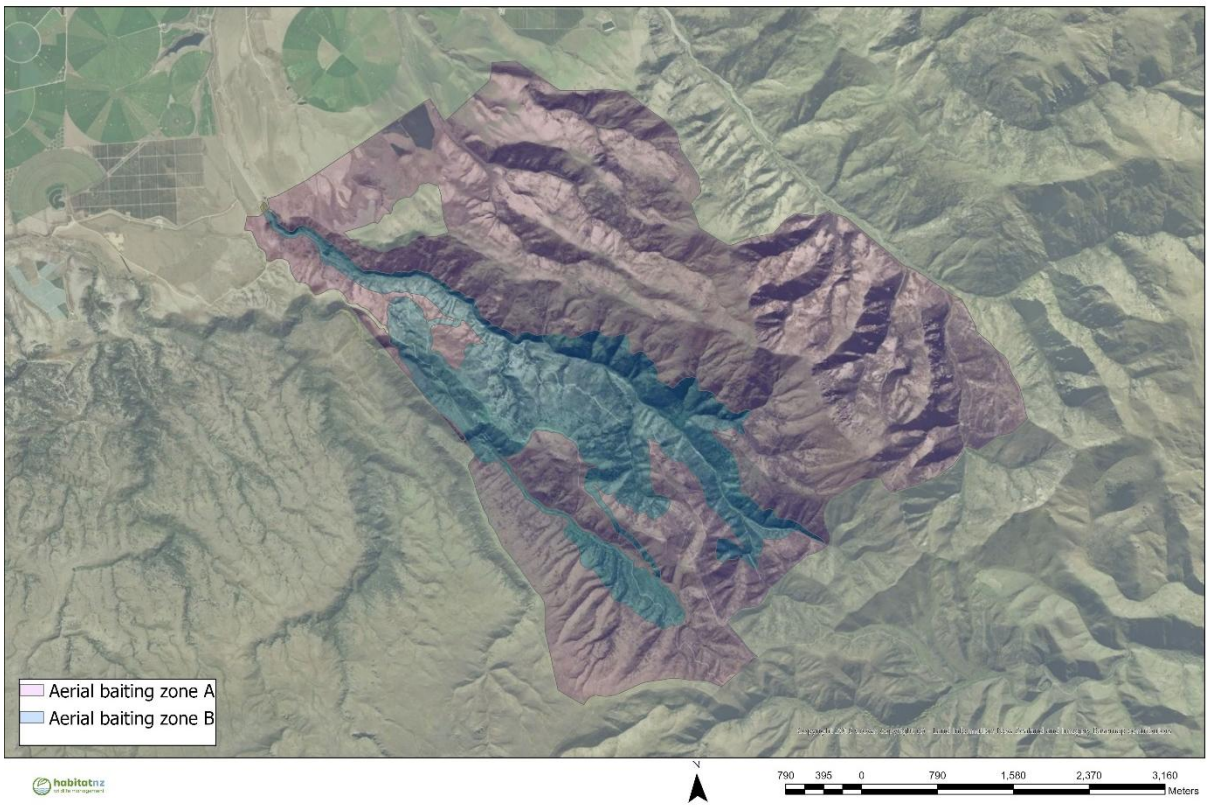


Figure ~~222~~1: Zone for aerial baiting operations for possum and rabbit control across the BOGP.

4.1.1. Control Methods and Implementation

Aerial Baiting Operations

- **Target Species:** Possums (primary), Rabbits (primary), Rats (secondary)
- **Frequency:** Every 2-3 years
- **Toxicants:** Pindone (rabbit control, every 2–3 years) and 1080 (possum and rodent control, triggered by monitoring) run as parallel operations. If a 1080 operation is needed in any year that a~~,~~ pindone operation is also scheduled, the pindone operation will be moved to either a different time of year or the following year~~the following year~~. ~~is dropped for that year.~~ ~~1080, pindone, or other approved alternatives based on seasonal conditions, target species composition, and non-target risk assessments~~

Background and Rationale:

Regular aerial baiting operations are the cornerstone of pest control across the BOGP site.~~,~~ U~~u~~sing systematic poison applications to reduce pest populations over large areas ~~. This method~~ provides complete coverage of ~~pest~~ habitat while maintaining efficiency across landscapes where ground-based control would be difficult or too

expensive. ~~The three-year cycle maintains constant pressure on pest populations through repeated treatments designed to disrupt breeding cycles and prevent numbers from recovering between control operations.~~

Two toxicants are used in the aerial baiting zone, each targeting different species, and they are not applied at the ~~in the~~ same to,~~eyear~~:

- **Pindone** (carrot-based bait) is the primary aerial toxicant for rabbit control, applied every 2–3 years (nominally on a 3-year cycle, but may be brought forward to 2 years if rabbit monitoring indicates population recovery above RPMP thresholds). Pindone is ~~dropped~~not applied ~~in any year that a 1080 operation is required~~at the same time as 1080.
- **1080** (cereal-based bait) is a separate operation directed by possum and rodent monitoring results (chewcard index for possums, tracking tunnel indices for rodents). While 1080 will also reduce rabbit populations, to a lesser degree, possum and rodent monitoring ~~— not rabbit monitoring —~~ drives the decision to use it. ~~In any year~~If 1080 is needed, pindone is not applied at the same time.

Pindone and 1080 run as parallel operations on independent schedules but are never ~~applied in the same year~~at the same time ~~—~~ if 1080 is needed, pindone ~~is dropped for that year~~will not be used at the same time~~that year and rescheduled to another year~~.

Aerial delivery is particularly effective for reaching possums in tree tops and rabbits in areas with extensive burrow systems or steep slopes where ground-based methods have limited success. The treatment also reduces rat populations, providing additional benefits for native wildlife.~~,~~ ~~although~~ However, mouse populations are unlikely to be significantly affected ~~due to~~because of the scale of operations and how the bait is delivered.

Species-Specific Integration

Possums (Primary Target): Aerial baiting ~~provides~~ achieves landscape-scale population reduction through systematic ~~toxicant~~ application of toxicant. Operations target both adult and juvenile possums across all habitat types, with effectiveness measured through annual chewcard monitoring maintaining populations at or below 6% CCI.

Rabbits (Primary Target): Pindone is the primary toxicant for rabbit control, applied on a 2–3-year cycle. 1080 operations targeting possums and rodents will also reduce rabbit populations to some degree as a secondary benefit, but do not substitute for dedicated pindone operations. Rabbit monitoring results (Modified McLean Scale) inform the timing of pindone operations within the 2–3-year window. Quarterly ground-based shooting supplements the aerial operations throughout the cycle.~~Concurrent rabbit control maximises operational efficiency while achieving RPMP compliance~~

~~requirements. The three-yearly cycle provides sustained population pressure, supplemented by quarterly ground shooting operations where aerial methods alone prove insufficient.~~

Rats (Secondary Target): Rat populations receive secondary impacts from aerial baiting operations, providing landscape-scale suppression that reduces the need for intensive ground-based rodent~~at~~ control.

Mice (Secondary Target): Mouse populations receive secondary impacts from aerial baiting operations, providing landscape-scale suppression that reduces the need for intensive ground-based mouse control.

Operational Requirements~~:~~

Aircraft selection depends on terrain and operational needs, with both fixed-wing and helicopter options effective when properly equipped. Pilots must hold current CAA agricultural certification with specific toxicant application experience.

~~Pindone (carrot-based bait) is applied every 2–3 years for rabbit control. 1080 (cereal-based bait) is a separate operation directed by possum and rodent monitoring, and will also reduce rabbit populations to a lesser degree. These operations run on independent schedules but are never applied in the same year — if 1080 is required in a given year, pindone is dropped for that year.~~ Bait formulations must maintain palatability and remain in good condition throughout operations.~~Toxicant choice (1080 and or pindone, or approved alternatives) depends on seasonal conditions, target species, previous site use, and non-target risk assessments. Bait formulations must ensure palatability—typically carrot baits for rabbits and cereal-based for possums—while maintaining lethal doses and remaining in good condition throughout operations.~~

Pre-feeding 1-2 weeks prior establishes feeding patterns and increases bait consumption, particularly for wary species like rabbits. Operations require low wind conditions with no rain forecast for 24 hours post-application, and bait integrity must be maintained throughout transport and storage.

Aerial baiting operations require a specialised team of certified professionals and properly equipped aircraft to ensure safe and effective execution.~~,~~ T~~t~~hese include:

- CAA-certified pilot experienced in agricultural operations
- GROWSAFE-certified operations coordinator with Controlled Substance Licence and/or Pindone Approved User certification
- Ground crew for bait loading and logistics support

- Fixed-wing aircraft or helicopter with spreading equipment
- GPS tracking systems and weather monitoring equipment

Safety and Integration Framework:

Successful aerial baiting operations require comprehensive safety protocols and systematic integration procedures to ensure both operational effectiveness and public safety, including:

- Public notification and area closure procedures
- Secure storage and transport protocols
- Emergency response procedures
- Integration with ground-based control timing
- Weather monitoring throughout operations
- Correct bait preparation procedures if using cut carrot baits.

4.2. Ungulate Control Zone (2,673 ha)

The ungulate control zone is divided into two areas (A and B) (Figure 3~~Figure 2~~) and covers most of the BOGP site, representing a large area requiring control for the most visible and potentially damaging pest species. This zone requires the most intensive initial control effort followed by ongoing monitoring to maintain the lowest possible ungulate population across the site. Zone A receives treatment during every scheduled operation, while Zone B includes only areas where mining or rehabilitation activities are not taking place at the time of each ungulate control operation. This approach ensures operational separation between pest control and mining activities

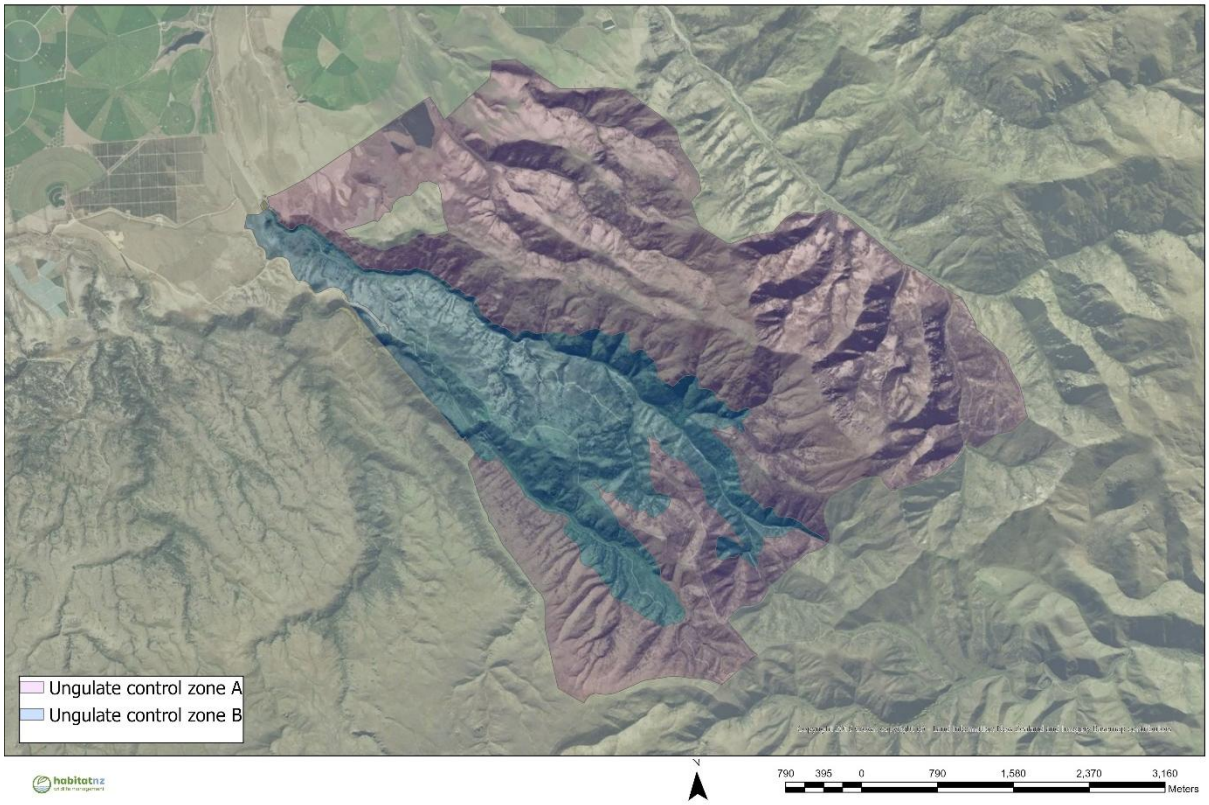


Figure ~~33~~32: Area for feral deer, feral goat and feral pig management across the BOGP.

4.2.1. Helicopter-Based Shooting

- **Target Species:** Deer, Goats, Pigs
- **Frequency:** 6-monthly (Year 1), then annually
- **Personnel:** CAA-certified pilot, licensed shooter with aerial shooting experience, ground coordinator

Background and Rationale

Helicopter-based shooting is the main control method for ungulates across the BOGP site.~~,~~ U~~u~~sing aircraft operations~~to~~ achieves rapid and systematic population reduction across large areas and difficult terrain. This method provides complete coverage of ungulate habitat while maintaining efficiency over extensive areas. The technique is particularly effective in the BOGP's varied landscape, where ungulates often seek shelter in steep terrain and remote areas that are difficult to reach on foot.

Aerial shooting requires specialised skills in both flying and marksmanship, as operators must safely target moving animals from an aircraft while maintaining aviation safety standards. Detailed flight planning is essential before each operation, including identification of hazards such as power lines, communication towers, and other aviation obstacles.

Operational Requirements

All aerial shooting operations require qualified personnel and comprehensive risk management plans. Personnel include a CAA-certified pilot with experience in low-level flight operations and dynamic flight patterns, a licensed shooter with demonstrated aerial shooting experience and annual competency testing, and a ground coordinator responsible for radio communications and coordination with site activities. Risk management plans must outline clear procedures for maintaining communication with mining operations, ecological workers, and local farmers to reduce potential hazards.

Equipment and Safety Requirements

Operations require specialized equipment including helicopters providing adequate visibility and maneuverability, high-powered rifles or shotguns for clean kills at varying distances, GPS equipment for accurate location recording, communication equipment for coordination and emergency response, and safety equipment including high-visibility clothing and first aid supplies.

Safety protocols mandate minimum visibility of 1000m and wind speeds below 25 knots. No-fly zones must be clearly identified and includeing mining infrastructure, residential buildings, and sensitive ecological sites. Pre-flight briefings cover operational area boundaries, target species identification, safety protocols, emergency response procedures, and coordination with other site activities.

Coordination and Integration

Ungulate control requires the highest level of coordination of any BOGP mammalian pest control activity due to its intensive nature and potential interaction with site activities. This includes coordination with mining activities and operational schedules, other pest control operations, ecological field crews, public safety requirements, and adjacent landowner notification protocols. Ground-based follow-up operations require immediate deployment capability and coordination with site access protocols to maintain clear communication channels and safe separation between aerial and ground activities.

4.2.2. Ground Based Shooting - Ungulates

Target Species: Deer, Goats, Pigs

Application: Follow-up to aerial operations, terrain-specific control, targeted control

Frequency: Reactive response as needed

Background and Rationale

Ground-based hunting is an important method for controlling ungulates at the BOGP site, especially as follow-up to aerial shooting or in areas inaccessible to helicopters. Skilled hunters help eliminate remaining animals, ensuring thorough coverage and achieving zero density targets. This approach is particularly valuable in dense vegetation where aerial shooting may be less effective, or in terrain where helicopter operations present safety risks.

Operational Approach

Operations are conducted by experienced professional hunters using appropriate firearms and safety equipment, enabling precise targeting while minimising disturbance to sensitive ecological areas and mining operations. The systematic search approach ensures thorough area coverage, with hunters employing tracking skills and ungulate behaviour knowledge for effective animal location. This method proves particularly effective for follow-up operations after aerial shooting, where individual animals may be wounded or scattered.

Weather conditions significantly impact effectiveness, with adequate visibility and safe shooting conditions essential for hunter safety and humane dispatch. Ground operations require careful coordination with site activities to prevent interference and ensure safety.

Personnel and Equipment Requirements

Each operation requires licensed firearms holders with demonstrated professional hunting experience, current Health and Safety certification, first aid qualifications, and annual competency testing. Essential equipment includes suitable firearms for target species and terrain, communication equipment for site coordination and emergency response, GPS units for accurate location recording, high-visibility clothing for safety during industrial activities, and sufficient ammunition for extended operations.

Integration and Coordination Framework

Ground-based hunting complements aerial shooting methods, typically deployed as rapid response to prevent animal dispersal and enhance overall control success. Operations require careful coordination with site activities to ensure safety and prevent interference with mining or other site activities. Effectiveness is evaluated through documentation of animals removed, post-operation monitoring, and adaptive management based on seasonal patterns and changing animal behaviour.

4.2.3. Specialised Pig Hunting with Dogs

Target Species: Feral Pigs

Application: Reactive response following aerial shooting

Frequency: As required (reactive)

Background and Rationale

Specialized pig hunting with dogs provides rapid response capability for feral pig control across the BOGP, deployed as immediate follow-up to aerial shooting when pigs are detected but not eliminated, or as reactive control when pigs are identified within the control zone. This method utilizes trained hunting dogs and experienced handlers to locate and control pigs in dense vegetation where other methods may be less effective.

Feral pigs present unique challenges due to their intelligence, wariness, and ability to exploit dense cover. Specialised hunting dogs trained in pig location and holding enable systematic coverage of potential habitat while providing capability to pursue animals into inaccessible areas. The method requires deployment within 72 hours of pig detection to prevent dispersal and ensure effective control within established home ranges.

Operational Approach

Operations are conducted by specialist pig hunters with extensive experience in dog handling ~~experience, working with trained hunting dogs~~. Dogs are specifically trained to locate, track, and bail or hold pigs without causing unnecessary stress, enabling humane dispatch. The systematic search covers potential pig habitat based on animal sightings, sign or areas of previous success, with dogs working methodically through areas where pig activity has been detected.

GPS tracking equipment for both dogs and personnel ensures accurate location ~~recording~~ data and coordination of search efforts across large areas. Immediate field processing prevents scavenger attraction while enabling rapid area clearance.

Safety and Integration

Comprehensive safety protocols cover both human and animal welfare, with communication systems enabling coordination with site activities and emergency response capability. Integration with aerial shooting requires immediate deployment following pig detection, with hunting teams mobilised to prevent animal dispersal. Although feral pigs typically remain within established home ranges, the potential for ~~animals~~ them to be chased beyond property boundaries requires coordination with adjacent landowners and rapid response protocols.

4.3. Lagomorph Ground Control Zone (1,791 ha)

The lagomorph ground control zone provides targeted rabbit control across three operational areas (A, B, and C) (Figure 4~~Figure 3~~)Figure 4: Area for Lagomorph ground control across the BOGP.~~Figure 3: Area for Lagomorph ground control across the BOGP.~~ to achieve population levels meeting RPMP compliance standards. This zoned approach enables flexible control implementation while maintaining operational separation from mining activities and protecting sensitive ecological areas.

Zone A permits full control implementation using all methods outlined in this section. Zone B undergoes intensive treatment only in locations free from active mining or rehabilitation during scheduled control periods, ensuring clear separation between pest management and operational activities. Zone C covers threatened cushionfield areas that receive limited ground-based control operations. Ground-based rabbit control in Zone C will be conducted to maintain rabbit populations in compliance with the Otago RPMP. Additional control measures will be implemented in areas enclosed by rabbit-proof fencing for ARP research trials. Once ARP results are available, they will be integrated into Zone C management during the following annual review.

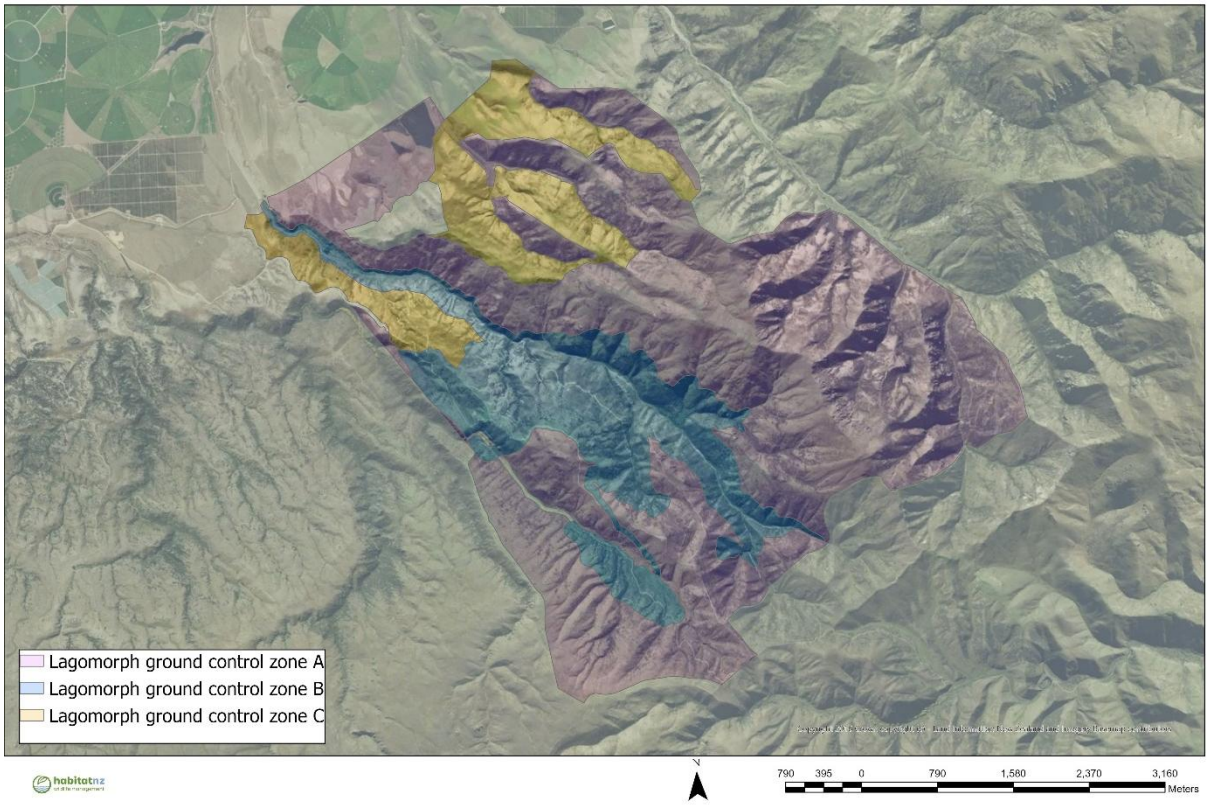


Figure ~~4443~~: Area for Lagomorph ground control across the BOGP.

4.3.1. Ground Based Shooting - Rabbits

Target Species: rabbits (primary), hares (secondary)

Frequency: Quarterly

Personnel: Professional hunters with necessary competencies, operational coordinator

Target Species Management

- **Rabbits (Primary Focus):** Quarterly ground shooting operations maintain population compliance with RPMP requirements (≤3 McLean Scale) this may provide fresh carcasses for predator trap bait. Operations utilise night shooting during peak rabbit activity periods for maximum effectiveness.
- **Hares (Opportunistic Control):** Hare control occurs opportunistically during rabbit shooting operations, with hunters targeting hares when encountered. While hare populations typically remain lower than rabbit populations, individual animals can cause significant damage requiring systematic removal.

Note on rabbit control in Zone C:

The ARP will determine appropriate control levels over time for these fenced areas and other cushionfield sites within Zone C. If rabbits are present within established fences at densities higher than set by the ARP, standard ground-based shooting methods or ground based pindone application will be used for additional control. Control operations may be conducted during quarterly activities or separately, with repeat interventions required if initial control is unsuccessful or fencing fails. Any results that identify more suitable rabbit density thresholds, or improvements to cushionfield rabbit management, will be incorporated into this section of the MPMP through the annual evaluation process as soon as practicable.

Integration with Broader Program

Lagomorph ground control operations integrate with other control methods, particularly through carcass supply for predator trap networks. This integration reduces operational costs while ensuring fresh bait availability for trap operations across the site.

Operations are coordinated with aerial baiting schedules to prevent conflicts while maintaining sustained population pressure on rabbits. This coordinated approach ensures comprehensive lagomorph management while supporting broader pest control objectives across the BOGP landscape.

Resource Allocation and Coordination:

- **Personnel:** Professional hunters with lagomorph control experience, operational coordinator for logistics and data management. Shooters must undergo annual competency testing to ensure proficiency in ground-based shooting techniques.

- **Equipment:** Appropriate firearms (.17 rifles, .22 rifles, or shotguns), night shooting equipment (thermal/spotlight), vehicles for access and carcass transport.
- **Integration:** Coordinate with aerial baiting schedules, supply trap networks with fresh bait, adapt operations based on McLean Scale monitoring results.

Background and Rationale

Lagomorph shooting operations provide targeted control of rabbits and hares across the BOGP landscape, designed to complement cyclical aerial baiting and maintain population suppression between aerial cycles. This method enables precise targeting while minimising impacts on sensitive ecological areas, particularly important in cushionfield habitats requiring minimal disturbance. Quarterly frequency ensures sustained population pressure while preventing recovery that could compromise restoration objectives.

Ground-based shooting can be particularly effective during optimal lagomorph activity periods, such as dawn, dusk and ~~night time~~nighttime, utilising skilled shooters with appropriate firearms and optics to achieve systematic population reduction. Night shooting capabilities enable targeting during peak activity periods when rabbits emerge from burrows and are most vulnerable to control efforts.

Operational Approach

~~Operations require professional hunters with specific lagomorph control experience, equipped with appropriate firearms including .17 rifles, .22 rifles or shotguns, and night shooting equipment (thermal imaging or spotlight equipment).~~ Systematic coverage of target areas ensures comprehensive population control while minimising the likelihood of missed areas that could serve as recolonisation sources. ~~Shooters must undergo annual competency testing to ensure proficiency in ground-based shooting techniques.~~

Integration and Coordination

The quarterly operation schedule coordinates with aerial baiting to prevent interference with bait drops, while maintaining sustained population pressure throughout the year. Carcass processing and freezing converts shot lagomorphs into trap bait, supporting predator control operations across the BOGP while reducing operational costs and ensuring fresh bait availability for trap networks. Operations adapt based on Modified McLean Scale monitoring results, enabling responsive management of localised population increases.

4.4. Predator Network Control Zone (1,112 ha)

The predator network zone (Figure 5~~Figure 4~~) utilises permanent trap stations following landscape features that facilitate predator movement, including tracks, fence lines, waterways, and habitat boundaries. This zone provides continuous predator control pressure year-round, serving as the backbone of predator management across the BOGP landscape.

The predator control zone is divided into two operational sections (A and B). Zone A will be established immediately upon resource consent approval, while Zone B will be implemented progressively as rehabilitated areas within the mining footprint become available. Trap installation in Zone B will occur once specific locations are no longer required for active mining or rehabilitation activities, maintaining clear operational separation between pest control areas and mining operations.

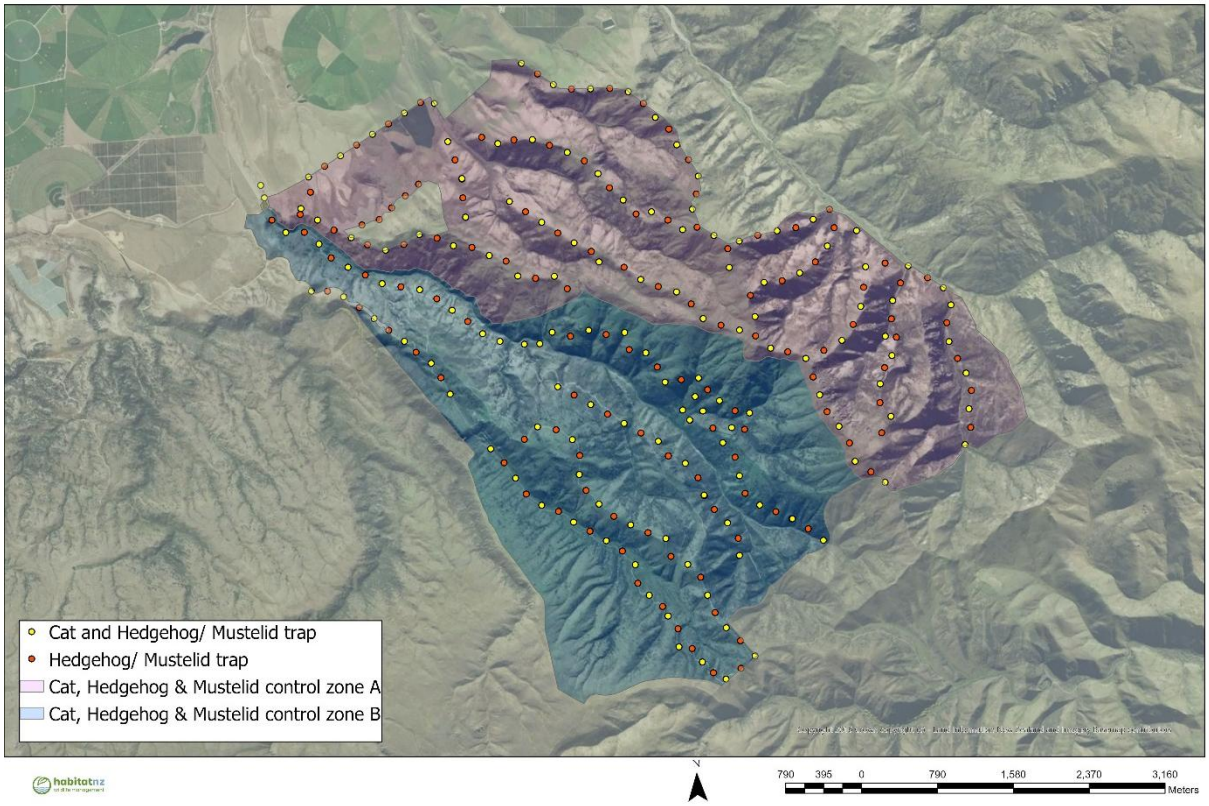


Figure ~~5~~5~~4~~: Control zone and trap placement for feral cat, hedgehog and mustelid control across the BOGP landscape.

4.4.1. Kill Traps - Predator Network

Target Species: Cats, Mustelids, Hedgehogs

~~**Application Zone:** Predator network (1,112 ha)~~

Frequency: Year-round operations

Background and Rationale

Kill traps provide continuous predator control across the BOGP site through strategically deployed networks targeting cats, mustelids, and hedgehogs. Permanent trap locations follow natural movement corridors including tracks, fence lines, ridgelines, and habitat boundaries, ensuring comprehensive coverage while maintaining operational efficiency. The network design utilises established best practice guidelines with documented 400-meter effective ranges for trap lines (King and Edgar 1977), maximising trapping effectiveness while optimising resource allocation.

Operational Approach

The predator network maximises operational efficiency by targeting multiple species using shared networks and trap checking routes. Feral cats are controlled using SA2 Kat traps deployed at 400-meter intervals along key tracks and ridgelines. Mustelids (ferrets, stoats, and weasels) and hedgehogs are controlled using DOC 250 traps placed at 200-meter intervals, following NPCA guidelines (NPCA 2018) with trap enclosures having openings of at least 80x80mm for hedgehog access.

Trap checking schedules vary seasonally (weekly January-May, monthly June-December) based on breeding seasons and activity periods. Baiting strategy involves fresh or salted rabbit meat, eggs, poultry, or long-life mustelid lures with regular rotation every three months to prevent behavioural adaptation by target species.

Integration and Adaptive Management

Integration with lagomorph shooting operations provides fresh and frozen bait supply, reducing operational costs while maximising trap effectiveness. The initial trap network represents the starting point for deployment, with systematic evaluation scheduled at the two-year program milestone to assess control effectiveness and optimize resource allocation. Performance data will inform adaptive management decisions regarding trap density adjustments, ensuring optimal balance between operational efficiency and control effectiveness.

4.5. Possum Ground Control Zone (2,672 ha)

The possum ground control zone is split into two sub zones (Figure 6~~Figure 5~~) encompassing the same spatial extent as the aerial baiting zone, providing complementary ground-based possum control to supplement aerial operations and address localised population recovery between aerial application cycles. This zone enables targeted possum control through performance-based contracting, allowing experienced operators to utilise the most appropriate methods for specific site conditions and population densities.

Zone A receives control treatment during every scheduled control round, while Zone B undergoes control only in areas free from active mining or rehabilitation activities during scheduled periods, ensuring clear separation between pest management and operational mining activities.

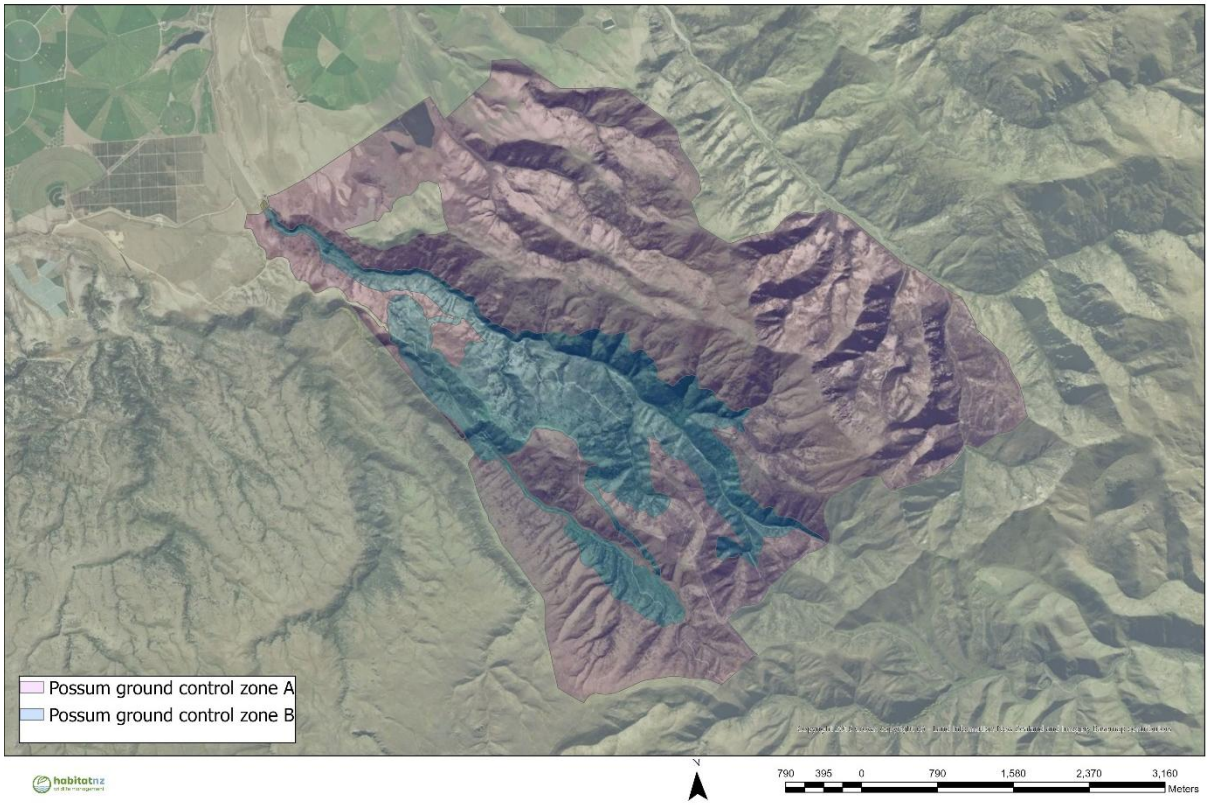


Figure ~~6665~~: Possum ground control zone across the BOGP landscape.

4.5.1. Ground Based Control – Possums

Target: Possums

Frequency: reactive; based on monitoring results

Control Strategy Integration

Ground-based possum control operates as a complementary system to aerial baiting operations, addressing areas where aerial methods may be less effective due to terrain, vegetation cover, or behavioural adaptation. The performance-based approach enables contractors to select optimal methods including kill trapping, targeted baiting, or alternative techniques based on local conditions and population assessment. This flexibility ensures effective possum control while maintaining cost-efficiency across the extensive control area.

Operational Approach

Experienced contractors implement ground-based possum control using performance-based contracts focused on achieving and maintaining target population levels rather than prescriptive method requirements. Contractors retain operational flexibility to utilise kill trapping, leghold trapping, localised baiting, or other approved methods while being specifically prohibited from using the same toxins deployed in aerial baiting operations to prevent resistance development.

Method selection must demonstrate cost-effectiveness while achieving required population reduction targets, with contractors required to maintain appropriate certifications, insurance, health and safety compliance, and equipment suitable for selected control methods.

Integration and Performance Requirements

Operations coordinate timing and methods with aerial baiting operations to control possum population between aerial control events. Performance monitoring through chewcard monitoring targets a 6% Chew Card Index (CCI) ~~level~~, with contractors required to intensify efforts and rework areas when population targets are exceeded. This performance-based approach enables responsive management based on monitoring results while maintaining flexibility to address changing site conditions and population dynamics.

4.6. ~~Rat~~ Rodent control zone

The rodent~~at~~ control zone (Figure 7) encompasses Land Management Units (LMUs) 1 and 4 of the ARAMP, representing areas where forest regeneration is expected to progress most rapidly and where rodent~~at~~ control provides maximum ecological benefit. This zone targets the protection of forest seeds, fruit, and nesting native bird species during critical forest establishment phases. The zone operates primarily as a monitoring system with control implementation triggered by population thresholds, recognising that rat populations are currently sparse but require vigilance due to their

potential for rapid population growth and significant impact on forest regeneration processes once the forest regenerates.

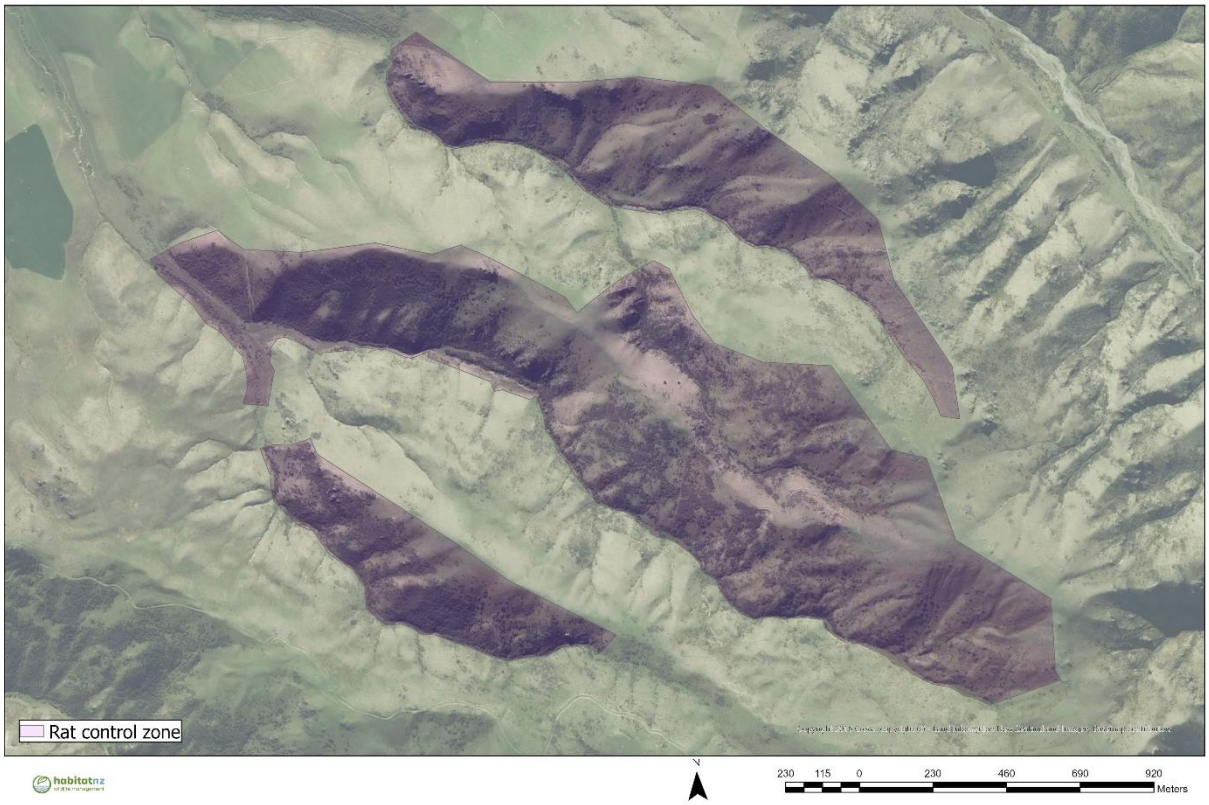


Figure ~~7776~~. Zone for potential rodena~~t~~t control at the BOGP.

4.6.1. Ground Based Control – Rodents

Target: rats (primary), mice (primary)

Frequency: reactive; based on monitoring results

Background and Rationale

Rodent~~at~~ control will be considered once the restoration area is at a stage when it can support birdlife and benefit from rodent~~at~~ control (~~this will be~~ guided by the ARAMP). At that time, the rodena~~a~~t control zone will employ a monitoring-first approach ~~based on current low rat densities detected during baseline surveys~~. This strategy (see section 5.5 for more information ~~on monitoring strategy~~) recognises that rodent~~at~~ populations can increase rapidly following control of other pest species or during favourable environmental conditions, requiring systematic monitoring to detect population changes and trigger appropriate control responses. Unlike other pest species requiring immediate intensive control, rodents~~ats~~ demonstrate classic "mesopredator release" (Thomas 2019) responses where populations can increase following suppression of larger predators or competitors.

Operational Approach

~~When control~~Control is warranted (determined by ARAMP review and reporting) ~~it will be triggered by~~when Tracking Tunnel Index (TTI) exceed~~sing~~ 10% threshold levels. Implementation utilises weatherproof bait stations positioned along rodent~~at~~ movement corridors and high-activity areas with strategic positioning along habitat edges, waterways, and shelter areas where roden~~a~~t activity is most likely to occur.

Station placement follows 50-100 m~~eter~~ spacing intervals depending on habitat type and rodent ~~at~~ density, targeting greater than one station per 1.5 hectares in sensitive areas, which has been shown to generate significant positive effects for native bird populations (Ruffell and Didham 2017). Professional contractors maintain capability to rapidly deploy control infrastructure when triggered by monitoring results.

~~Bait formulations are rotated to prevent behavioural aversion and maintain palatability throughout the control period. Regular monitoring of bait consumption rates provides feedback on station effectiveness and enables adaptive management of bait types and placement~~

Bait Management and Safety Protocols

Rodenticide selection prioritises first-generation anticoagulants, with approved compounds including diphacinone, bromadiolone, or cholecalciferol used in block or pellet formulations. Selection will be based on environmental conditions, target species composition, and non-target risk assessments. Bait formulations may be rotated between pulse events to prevent behavioural aversion and maintain palatability throughout the control period.

The pulsed control approach ensures continuous bait availability during active control periods while minimising environmental exposure when control is not required. A critical requirement is that bait stations do not run out during active pulses - stations will be checked and replenished twice in the first week of each pulse, once in the second week, with bait removed one week later. Monitoring of bait consumption rates at each visit provides feedback on station effectiveness and enables adaptive management of bait types and placement. Emergency response protocols address any incidents involving non-target exposure or unauthorised access to bait stations.~~Rodenticide selection includes approved compounds such as diphacinone, bromadiolone, or brodifacoum in block or pellet formulations, with selection based on environmental conditions, target species composition, and non-target risk assessments. Bait formulations are rotated to prevent behavioural aversion and maintain palatability throughout the control period.~~

~~The pulsed control approach ensures continuous bait availability during active control periods while minimising environmental exposure when control is not required. Regular monitoring of bait consumption rates (weekly during bait pulses) provides feedback on station effectiveness and enables adaptive management of bait types and placement. Emergency response protocols address any incidents involving non-target exposure or unauthorized access to bait stations.~~

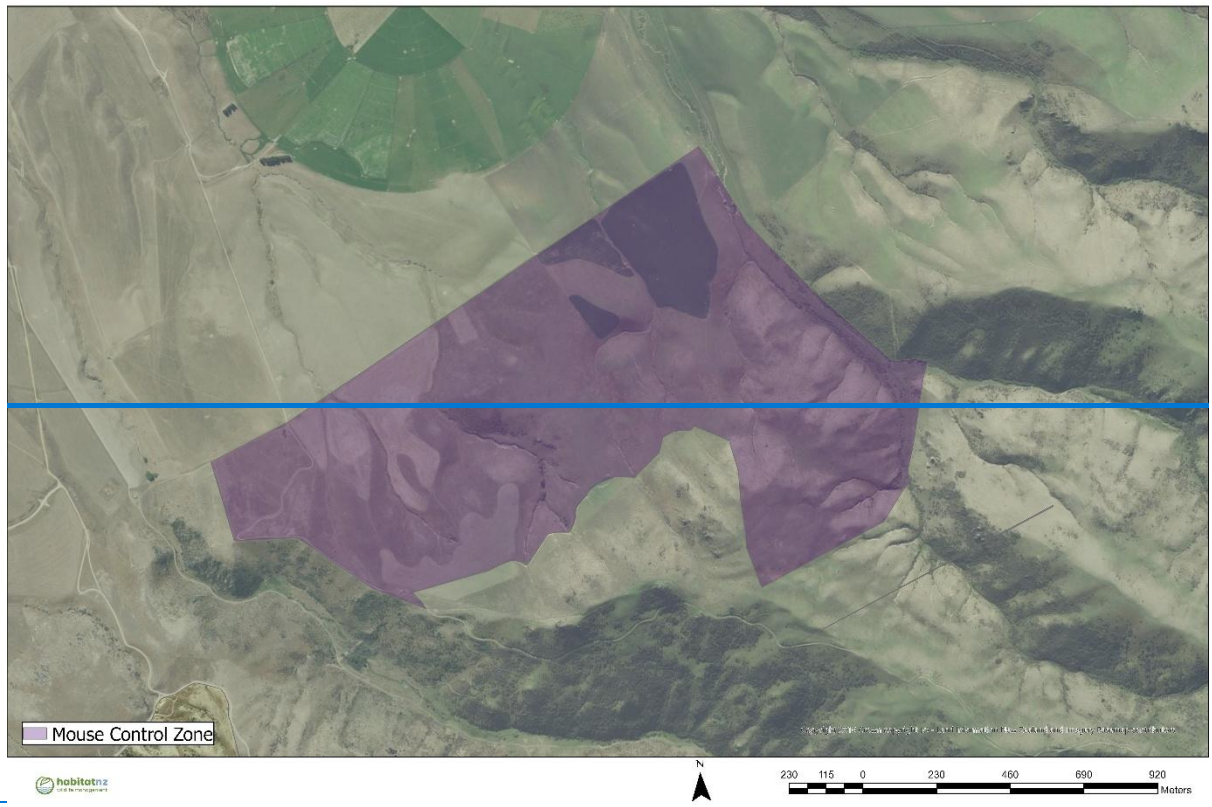
Integration with Monitoring and Adaptive Management

Operations coordinate with aerial baiting schedules and predator network coverage suppress rats in the periods between aerial control. The trigger-based approach ensures control resources are deployed when and where most needed, optimising cost-effectiveness while maintaining responsive management capability. Integration with monitoring enables assessment of control effectiveness and adaptive management responses based on bait consumption rates and station performance.

~~4.6.1. Relocated Species Protection~~

~~Relocated native lizard and invertebrate species will benefit from the comprehensive multi-species pest control program implemented across the BOGP predator control zone, with no additional species-specific control measures required. The pest management strategy utilises integrated control approaches to ensure successful establishment of relocated populations within the designated species protection zones.~~

~~Mouse control~~



~~Background and Rationale~~

~~Mouse control will be considered once relocations begin and the ARAMP is initiated. Mice were detected throughout the site at low to moderate densities during baseline surveys, so a monitoring-first approach will be applied, consistent with the adaptive management framework guiding the broader pest control programme. This strategy (see section 5.5 for more information) recognises that mouse populations can increase rapidly following control of other pest species or during favourable environmental conditions, requiring systematic monitoring to detect population changes and trigger appropriate control responses. Unlike other pest species requiring immediate intensive control, mice demonstrate classic "mesopredator release" (Thomas 2019) responses where populations can increase following suppression of larger predators or competitors.~~

~~Operational Approach~~

~~Control is warranted (determined by ARAMP review and reporting) when Tracking Tunnel Index (TTI) exceeds 5% threshold levels required to maintain lizard populations (Norbury et al., 2023). Implementation utilises weatherproof bait stations positioned along mouse movement corridors and high-activity areas with strategic positioning along~~

habitat edges, waterways, and shelter areas where mouse activity is most likely to occur.

Station placement follows 25m spacing intervals depending on habitat type and mouse density, targeting greater than one station per 1.5 hectares in sensitive areas, which has been shown to generate significant positive effects for native bird populations (Ruffell and Didham 2017). Professional contractors maintain capability to rapidly deploy control infrastructure when triggered by monitoring results.

Bait formulations are rotated to prevent behavioural aversion and maintain palatability throughout the control period. Regular monitoring of bait consumption rates provides feedback on station effectiveness and enables adaptive management of bait types and placement

Norbury, G., Wilson, D. J., Clarke, D., Hayman, E., Smith, J., & Howard, S. (2023). Density-impact functions for invasive house mouse (Mus musculus) effects on indigenous lizards and invertebrates. *Biological Invasions*, *25*(3), 801.

Bait Management and Safety Protocols

Rodenticide selection includes approved compounds such as diphacinone, bromadiolone, or brodifacoum in block or pellet formulations, with selection based on environmental conditions, target species composition, and non-target risk assessments. Bait formulations are rotated to prevent behavioural aversion and maintain palatability throughout the control period.

The pulsed control approach ensures continuous bait availability during active control periods while minimising environmental exposure when control is not required. Regular monitoring of bait consumption rates (weekly during bait pulses) provides feedback on station effectiveness and enables adaptive management of bait types and placement. Emergency response protocols address any incidents involving non-target exposure or unauthorized access to bait stations.

Integration with Monitoring and Adaptive Management

Operations coordinate with aerial baiting schedules and predator network coverage suppress mice in the periods between aerial control. The trigger-based approach ensures control resources are deployed when and where most needed, optimising cost-effectiveness while maintaining responsive management capability. Integration with

~~monitoring enables assessment of control effectiveness and adaptive management responses based on bait consumption rates and station performance. Notably rat control operations that deploy rodenticide targeting rats will also suppress mouse populations present in those areas.~~

~~***Relocated Species Protection***~~

~~Relocated native lizard and invertebrate species will benefit from the comprehensive multi-species pest control program implemented across the BOGP predator control zone, with no additional species-specific control measures required. The pest management strategy utilises integrated control approaches to ensure successful establishment of relocated populations within the designated species protection zones.~~

4.7. Targeted Rock Stack Control

Targeted rock stack control (Figure 8) will be applied to half of the manufactured rock stacks in the WELF - the first area where rock stacks will be installed - with the remaining half left uncontrolled. This paired design will test whether rodent control reduces rodent presence at treated stacks, and whether rodents are utilising uncontrolled stacks as refugia. The programme will also provide additional predator control and protection for lizards and invertebrates utilising these features. Results will be reviewed after two years to determine whether the activity has sufficient benefit to justify continuation, extension, or cessation.~~The targeted rock stack control (Figure 8) will take place on half of the manufactured rock stacks in the WELF. The WELF will be the first area where rock stacks are placed, and this control will provide two key functions: (1) provide additional predator control and protection for lizards and invertebrates that need these landscape features and (2) determine if rodents (e.g., mice) are using the manufactured rock stacks as refugia (i.e., occurring at higher densities than the surrounding landscapes).~~

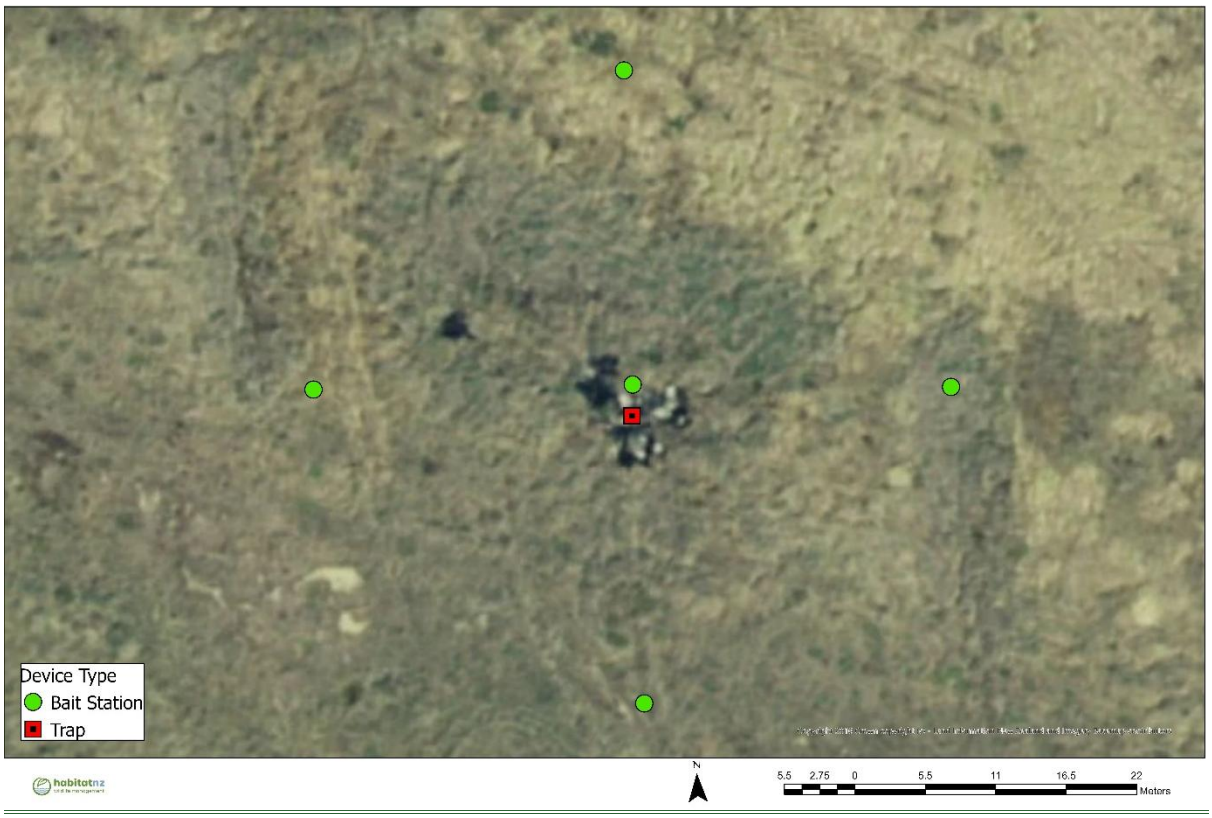


Figure 8 Example of targeted rock stack control. Each rock stack will have 5 bait stations and one auto-resetting kill trap.

4.7.1. Bait/Trap Station Network – Targeted Rock Stack Control

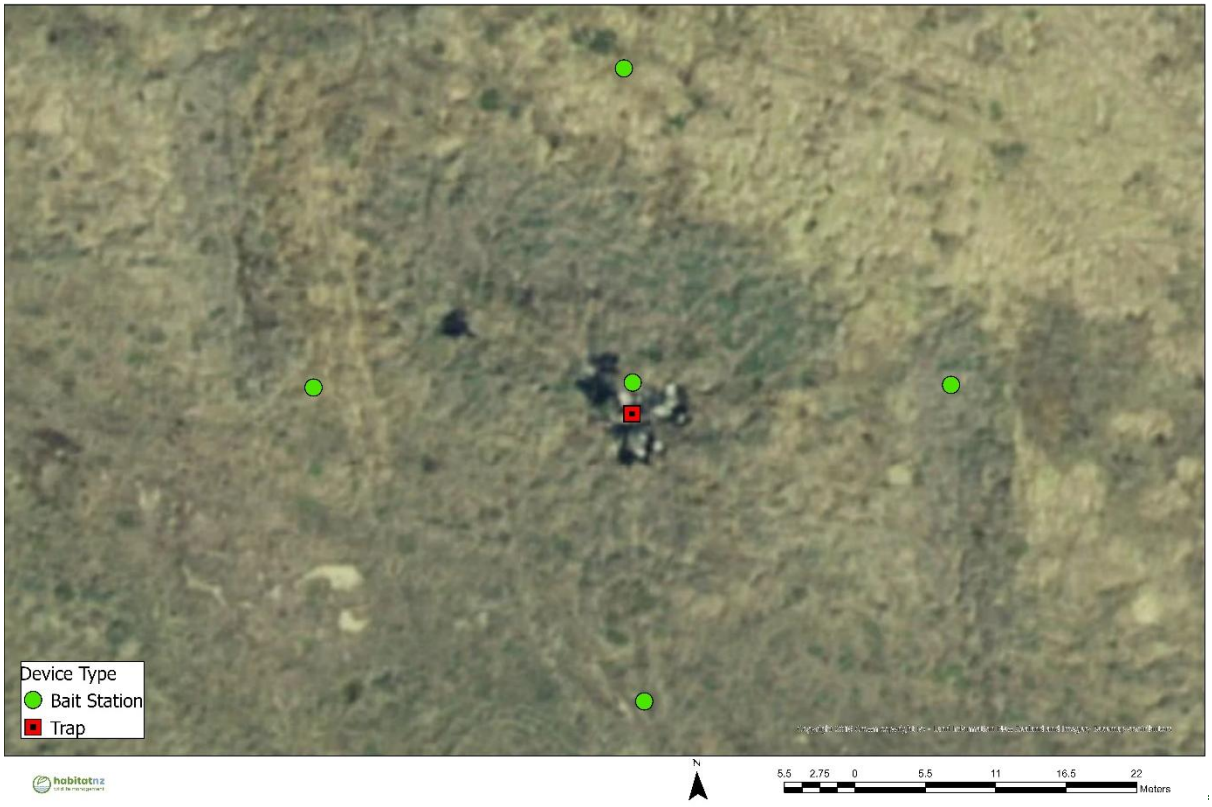
- **Target Species:** Mice (primary), Rats (primary), mustelids (secondary), feral cats (secondary), possums (secondary)
- **Frequency:** Twice yearly pulse baiting in September/October and February/March and quarterly monitoring (February, May, August, November)
- **Toxicants**: Rodenticide, including approved compounds such as diphacinone, bromadiolone or~~, or brodifacoum~~ cholecalciferol.
- **Traps**: Auto-resetting kill trap (e.g., AT220)

Background and Rationale

Rock stacks are key features in the BOGP landscape and provide key habitat for lizards and invertebrates. Part of the LERMP is to add manufactured rock stacks in the rehabilitation areas to ensure adequate, quality habitat for these species. However, these rock stacks may also act as refugia for rodents, especially mice, which would result in increased predation pressures on native species who utilise rock stacks.

Operational Approach

Predator control of manufactured rock stacks will occur in two phases, with the second phase dependent on the results from the first.



First Phase – Years 1 and 2

Initially, immediately after establishment of WELF rock stacks, half of the manufactured stacks will receive additional predator and rodent control. This will include five bait stations with rodenticide, one placed at each rock stack and four placed 25m diagonally from each~~, one placed at the rock stack and four placed 25m diagonally from the~~ rock stack. One AT220 auto-resetting kill trap (or equivalent) will ~~be placed at the rock stack as well~~ also be placed at the rock stack (Figure 8). ~~Twice yearly bait pulse operations of two weeks in duration will be done~~Twice-yearly bait pulse operations of two weeks' duration will be conducted. Prior to the first control operation, and then quarterly, occupancy monitoring will be conducted on all manufactured rock stacks in the WELF.

Second Phase – Year 3 +

The second phase ~~is dependent on the results from the first phase as well as~~depends on the results of the first phase and on the success indicators for lizards and invertebrates (as defined in the LMP and TIMP, respectively). The bait station network, baiting operations, and monitoring schedule will be reviewed and adjusted based on

success of the control. Potential outcomes and their resulting impacts on the control zone operations could include, but are not limited to:

- Outcome: consistently higher levels of predator pests in the uncontrolled rock stacks compared to controlled rock stacks and higher levels of lizard use of stacks.
    - Potential changes to methodology could include expand pest control across all manufactured rock stacks.
- Outcome: No difference between controlled and uncontrolled rock stacks, with pest consistent with the uncontrolled stacks~~surrounding landscapes~~ and/or no differences in native species outcomes between controlled and uncontrolled rock stacks.
- Potential change to methodology could include pest control targeted elsewhere in the landscape where control would lead to more positive outcomes for native species.
- ~~Outcome: No difference in controlled and uncontrolled rock stacks, but occurrence consistently higher than the surrounding landscape and/or native species outcomes are consistently poorer than surrounding landscapes.~~
    - ~~Potential change to methodology could include additional bait stations and/or increasing number of toxic operations per year.~~

Based on information gathered from the first phase, the need for targeted control of manufactured rock stacks outside the WELF will be evaluated. A performance-based approach, rather than a prescriptive protocol, allows contractors to retain operational flexibility, applying insights from first phase data to adaptively manage pest predators in and around rock stacks and achieve the best outcomes for native species.

Bait Management and Safety Protocols

Rodenticide selection includes approved compounds such as diphacinone, bromadiolone, or ~~brodifacoum~~cholecalciferol in block or pellet formulations, with selection based on environmental conditions, target species composition, and non-target risk assessments. Bait formulations are rotated to prevent behavioural aversion and maintain palatability throughout the control period.

The pulsed control approach ensures continuous bait availability during active control periods while minimising environmental exposure when control is not required. Regular monitoring of bait consumption rates provides feedback on station effectiveness and enables adaptive management of bait types and placement. Emergency response protocols address any incidents involving non-target exposure or ~~unauthorized~~unauthorised access to bait stations.

Integration with Monitoring and Adaptive Management

Operations coordinate with the addition of manufactured rock stacks, which is habitat needed by native lizards and invertebrates. Integration with monitoring enables assessment of control effectiveness and adaptive management responses based on bait consumption rates and station performance.

5. MONITORING

Monitoring programs assess the effectiveness of control methods against specified success criteria for each species (Table 13~~Table 12~~). Protocols are consistent with ~~best practice guidelines for monitoring specific species where available, with monitoring methods integrated~~ best-practice guidelines for monitoring specific species, where available, and integrate monitoring methods to improve operational efficiency. Landscape control zone monitoring includes:

- Camera trap monitoring for predators;
- Camera trap monitoring for ungulates;
- Chewcard monitoring for possums;
- Modified McClean Scale monitoring for rabbits; and
- Tracking tunnel monitoring for rats and mice.

Table 13~~13~~12. Overview of monitoring targets, thresholds for additional control and timing required for management of mammalian pests across the BOGP.

Species	Monitoring target	Threshold for additional control	Monitoring type and timing
Feral cats	<2 detections per 2000 Camera Hours (CH)	>3 detections per 2000 CH	Quarterly camera trap monitoring for predators (February, May, August and November)
Hedgehogs	<3 detections per 2000 CH	>6 detections per 2000 CH	
Mustelids	<3 detections per 2000 CH	>5 detections per 2000 CH	
Lagomorphs	≤3 on the Modified McClean Scale	>3 on the Modified McClean Scale	Twice yearly monitoring (April and October)
Possums	≤6 CCI (chewcard index)	>6 CCI	Twice yearly chewcard monitoring (May and November)
Ungulates (feral deer, feral goats and feral pigs)	Zero detections on camera traps and no reported signs	>2 detections within a 3-week period (camera trap or observations) or direct impacts on plantings	Annual camera trap monitoring for ungulates (November and December) and observations of plantings
Rats	100% of monitoring activities completed on time with approved methods	≥10% TTI (tracking tunnel index)	Quarterly tracking tunnel monitoring (February, May, August and November)

Species	Monitoring target	Threshold for additional control	Monitoring type and timing
			NOTE: monitoring begins once ARAMP review determines rodent ~~at~~ control is worthwhile
Mice	~~<30% Occupancy<5% TTI (tracking tunnel index)~~	~~≥10% TTI (tracking tunnel index)~~Nil	~~Targeted Rockj Stacks~~ Quarterly occupancy monitoring (February, May, August, and November) in/around manufactured rock stacks.

5.1. Camera trap monitoring for predators

5.1.1. Description

Camera traps consist of motion-activated trail cameras positioned at designated bait stations to capture images of animals entering the camera's detection zone. These devices have emerged as a highly effective survey method for assessing mammalian pest presence and relative abundance throughout New Zealand, with methods developed following the Interim DOC Trail Camera Guide (Gillies 2023).

Camera traps consist of motion-activated trail cameras positioned at designated bait stations to capture images of animals entering the camera's detection zone. These devices have emerged as a highly effective survey method for assessing mammalian pest presence and relative abundance throughout New Zealand (Gillies and Brady 2018, Glen et al. 2013, Glen et al. 2014), with methods developed following the Interim DOC Trail Camera Guide (Gillies 2023).

Although hedgehogs have not been included in the guide, studies indicate camera traps are well-suited for hedgehog monitoring (Glen et al. 2014, Nottingham et al. 2021) and potentially outperform traditional techniques (Anton et al. 2018). Camera trap positioning at bait stations enables simultaneous monitoring of multiple species while maintaining operational efficiency across the control network.

Methods may be updated as the DOC protocol is finalised, along with a re-evaluation of success criteria and thresholds for additional control.

5.1.2. Deployment locations

Cameras will be positioned along 600m transects; each line will contain four devices spaced at 200m intervals on the lines indicated in Figure 9~~Figure 7~~.

Where possible, existing camera trap lines from the baseline survey have been used and may provide comparative data.

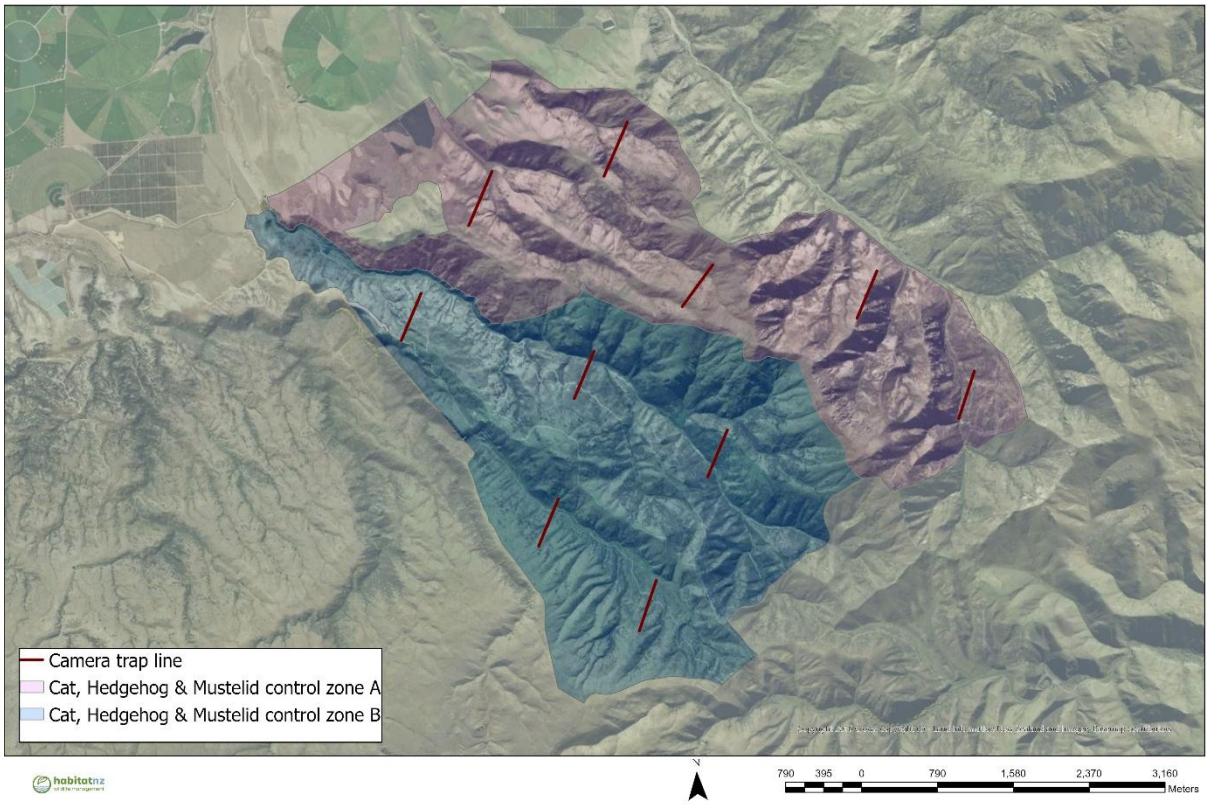


Figure ~~9987~~: Camera trap lines for monitoring feral cats, hedgehogs and mustelids within the predator control network for the BOGP.

5.1.3. Camera field deployment

Based on current recommendations for ensuring clear images of animal pests, field deployment of camera trap devices must be consistent with the following requirements:

- Cameras should be positioned on secure vegetation or steel Y posts with a lure placed within the cameras field of view to increase detection chances (Glen et al. 2013).
- Camera orientation should avoid direct sun exposure to prevent glare issues which can cause false triggers (Meek et al. 2012).
- Vegetation within the detection zone must be cleared to reduce false trigger incidents caused by wind movement although this a recognised limitation of camera trap technology (Glen et al. 2014)

As information and research develops, recommendations are likely to change and field deployment methods may be updated accordingly. While the Interim DOC guidelines suggest rabbit meat lure, long-life lures (such as PoaUku long-life mustelid lures) are

recommended during summer months as Central Otago weather is likely to spoil meat quickly and these lures remain attractive to cats and mustelids in the field for several weeks (Boffa Miskell Limited 2021).

Camera traps should be deployed during forecasted fine weather periods to minimise the impact of heavy rain and wind on image quality, although there are no specific weather requirements for deployment (Gillies 2023).

5.1.4. Camera configuration

Several trail camera models are available for deployment in New Zealand, including the Browning Spec Ops Elite HP5 camera that was used during baseline studies. Cameras will be configured with the following settings to comply with the proposed protocols and optimise detections:

- Medium sensitivity level to balance animal detection with false trigger reduction
- Three consecutive images captured per activation event
- 30-second minimum delay between successive trigger events

Multiple detections of the same species within a single trigger event counted as one capture. Ideally, white flash should be avoided as this may frighten animals (Glen et al. 2013).

5.1.5. Image classification and analysis

Camera trap images can be easily sorted using an image classifier software such as Timelapse or ZIP. Identification of most mammalian pest species is straightforward. However, stoats and weasels can present a challenge due to their physical similarities in colour and size.

Animals of the same species will be treated as a single detection if they occur within the same 15-minute period unless they can be unequivocally differentiated (i.e. feral cat markings differ).

Camera trap index

For each target species, a camera trap index calculated for each camera line to give an estimate of relative abundance and then averaged for each survey zone using the following equation:

$$Detections\ per\ 2000\ CH\ (camera\ hours) = \frac{number\ of\ detections}{number\ of\ camera\ trap\ hours} \times 2000$$

If a camera is suspected to have malfunctioned before retrieval, the duration of the malfunction will be excluded from the total number of active camera trap hours. This

includes periods of consecutive false triggers, hours where storage capacity was exceeded, or malfunctions because of animal interference.

If no images are recorded, the camera will be assumed to have failed and will be removed from analysis. Instances where weather affected camera trap functionality and potentially led to missed target species should be accounted for by excluding affected hours from the total working camera trap hours.

5.2. Camera trap monitoring for ungulates

5.2.1. Description

Camera trap monitoring provides standardised assessment of deer and goat populations through systematic deployment and data collection protocols that generate reliable population indices and management effectiveness measures (Sweetapple and Hickling 2024).

5.2.2. Deployment locations

Monitoring will be in general accordance with the DOC protocol for Camera Trap Monitoring of Deer & Goats (Sweetapple and Hickling 2024) and will involve 22 cameras will be deployed (generally one per 75 hectares) using systematic 300-500m grid spacing across study area (Figure 10~~Figure 8~~).

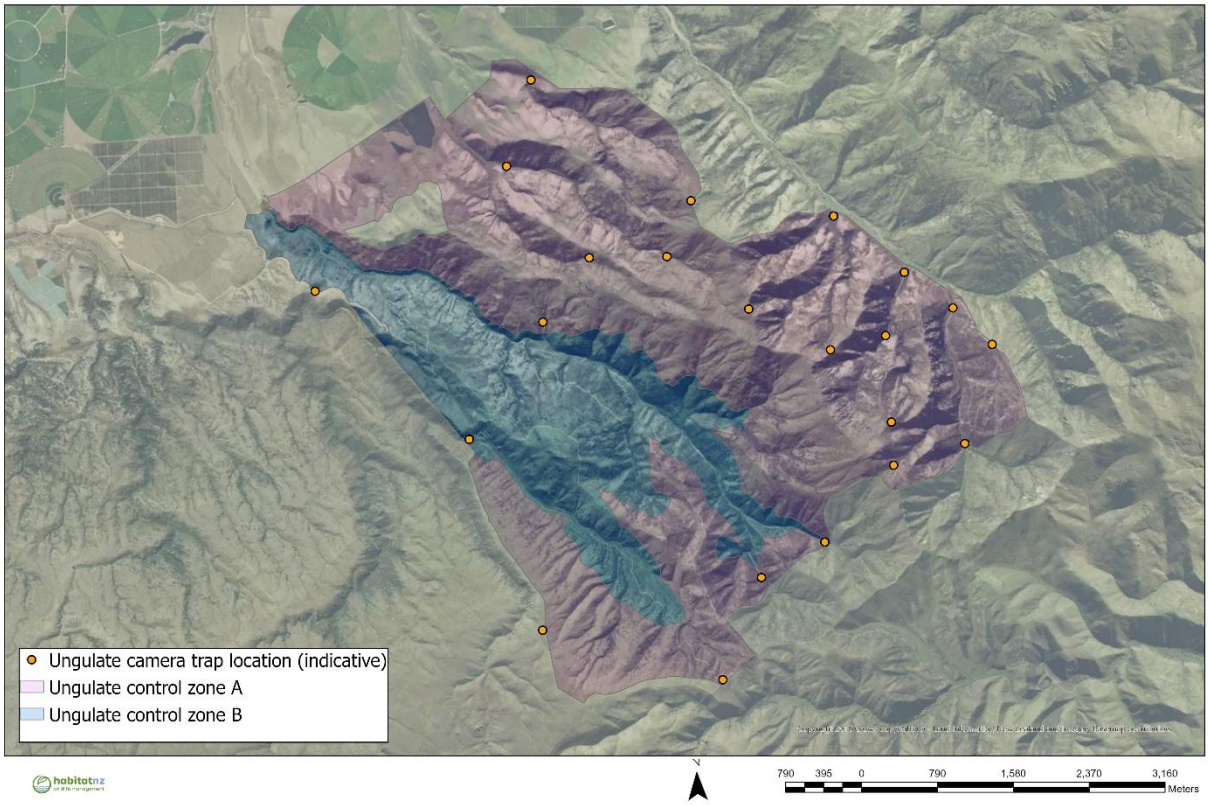


Figure ~~101098~~. Indicative camera trap locations for monitoring ungulates in the BOGP.

5.2.3. Camera field deployment and configuration

Motion-sensitive cameras with 'black flash' infrared capabilities are mounted 100cm above ground on trees or steel posts, positioned to capture 10m detection zones with south-facing orientation to minimize sun interference. Cameras must be secured against weather damage and animal interference.

Cameras operate for an 8-week deployment period with monthly servicing for battery replacement and SD card retrieval, avoiding seasonal transition periods (April-May, September-October) when ungulate activity patterns fluctuate.

5.2.4. Image identification and analysis

Image analysis identifies discrete "visits" separated by 5-minute intervals, recording species, individual counts, and temporal data to calculate Camera Trap Catch Index (CTCI) values expressing detection rates per unit time.

CTCI data supports population trend monitoring and before-after-control-impact assessment of management interventions including aerial operations and habitat modifications. Statistical analysis accommodates varying camera operational periods and environmental covariates, with results providing quantitative measures of ungulate population changes and management effectiveness. Regular reporting documents

population trends, control operation outcomes, and adaptive management recommendations based on observed responses to pest control measures.

5.3. Chewcard monitoring

5.3.1. Description

Chewcards are peanut butter-baited corflute detection cards that attract mammalian pests to leave bite marks. They represent a widely adopted, economical approach for monitoring possum, rat, and mouse presence and activity throughout New Zealand (Burge et al. 2016, Forsyth et al. 2018). Like camera traps, chewcards provide relative abundance measurements rather than absolute population counts, remaining effective at low pest densities (Sweetapple and Nugent 2011).

5.3.2. Deployment locations

A total of 10 chewcards at 20 m spacing will be deployed on the lines indicated in (Figure 11~~Figure 9~~), according to standard protocols for possum monitoring.

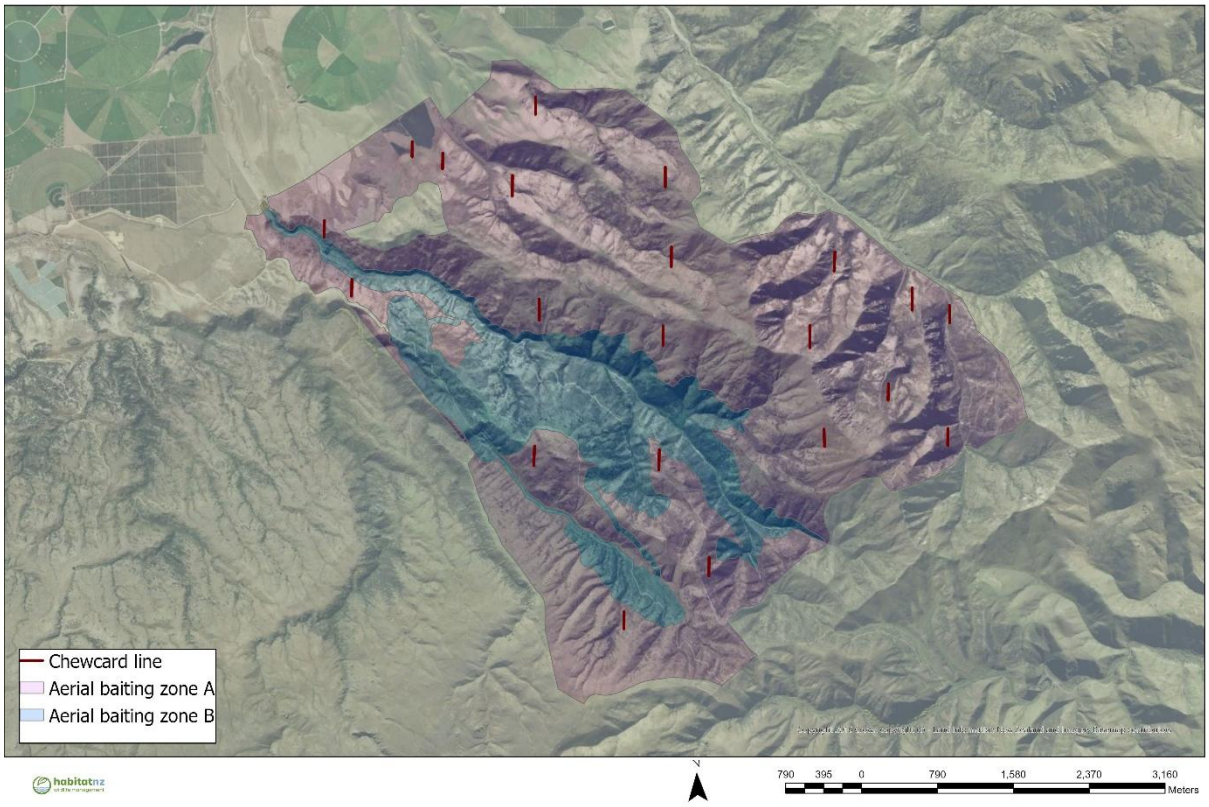


Figure ~~111109~~: Chew card monitoring locations at BOGP.

Chewcard monitoring line design generally adhered to NPCA protocol with two key adaptations. Pre-consent monitoring lines situated within the control zone were

incorporated to ensure continuity with previous surveys. Additionally, randomly placed lines that intersected with active mining operations or presented safety hazards to monitoring staff were repositioned to safer, alternative locations.

5.3.3. Chewcard field deployment

Chewcard deployment will follow standard DOC protocols for seven-night chewcard monitoring using corflute cards baited with peanut butter.

Given the lack of woody vegetation across the BOGP area, chewcards may be set out by securing them onto metal stakes driven into the ground.

The standard chewcard methodology requires field deployment during periods when weather forecasts are generally favourable, though some variation is acceptable for seven-night surveys (NPCA 2020). A 'fine weather night' is a night with no rain within the first four hours after sunset and where weather is unlikely to lessen mammalian pest activity significantly.

Bite marks on the cards must be assessed by a certified operator holding current Bionet Designer or Field Operative credentials, with findings recorded as present according to the current protocol requirements.

5.3.4. Chewcard analysis

A chewcard index (CCI), a measure of relative abundance, must be calculated following best practice guidelines (NPCA 2020) by a suitably qualified professional. This includes NPCA accredited designers or professionals with equivalent training and demonstrated experience in chewcard monitoring and index calculations.

5.4. Modified McClean Scale monitoring

5.4.1. Description

The modified McLean scale provides a standardised visual assessment method for quantifying rabbit abundance and grazing impact across pastoral and open landscapes (National Pest Control Agencies 2012). This technique offers a practical, cost-effective approach for monitoring rabbit populations over large areas where traditional methods such as spotlight counts, or pellet counts may be impractical or less reliable (National Pest Control Agencies 2012). The method generates relative abundance indices that correlate well with actual rabbit densities and provides consistent results across different observers when properly calibrated.

The modified McLean scale assesses rabbit abundance through visual evaluation of grazing pressure indicators, including vegetation height, pasture composition, and visible browse damage. This approach proves particularly effective in open grassland environments where rabbit grazing impacts are readily apparent and provides repeatable measurements suitable for long-term population monitoring (Edwards et al. 2001).

5.4.2. Protocol

The following list describes the modified McLean Scale for monitoring rabbit population levels as per RPMP requirements:

1. No sign found. No rabbits seen.
2. Very infrequent sign present. Unlikely to see rabbits.
3. Odd rabbits seen; sign and some buck heaps showing up. Pellet heaps spaced 10 metres or more apart on average.
4. Pockets of rabbits; sign and fresh burrows very noticeable. Pellet heaps spaced between 5 metres and 10 metres apart on average.
5. Infestation spreading out from heavy pockets. Pellet heaps spaced 5 metres or less apart on average.
6. Sign very frequent with pellet heaps often less than 5 metres apart over the whole area. Rabbits may be seen over the whole area.
7. Sign very frequent with 2-3 pellet heaps often less than 5 metres apart over the whole area. Rabbits may be seen in large numbers over the whole area.
8. Sign very frequent with 3 or more pellet heaps often less than 5 metres apart over the whole area. Rabbits are likely to be seen in large numbers over the whole area.

At least 20 assessment transects will be established across representative habitat types within the monitoring area. Each transect will consist of multiple observation points spaced at regular intervals, with McLean scale ratings recorded at each point. Assessments will be conducted during optimal visibility conditions, typically mid-morning hours when grazing impacts are most apparent.

Observers should undergo an initial “calibration” to ensure that the scale is applied correctly and with consistency. This can be achieved with multiple observers assessing the same location and comparing results. New observers will require this calibration process before beginning monitoring to maintain reliable assessments and accuracy.

5.5. Tracking tunnel monitoring

5.5.1. Description

Tracking tunnels are standard monitoring devices consisting of enclosed tunnels containing ink pads and tracking cards to record footprints of small mammals. They represent a widely established, cost-effective approach for detecting small mammal presence and activity throughout New Zealand, particularly for rats, mice, and mustelids (Brown et al. 1996, Gillies and Williams 2013). Like other passive monitoring methods, tracking tunnels provide relative abundance indices rather than absolute population estimates, maintaining effectiveness across various pest density levels (Blackwell et al. 2002).

These methods have been developed based on one-night tracking tunnel monitoring for rodents (Gillies and Williams 2013).

5.5.2. Deployment locations – rodent control zone

Ten tracking tunnels will be deployed along 450m transects at indicative line locations (Figure 12~~Figure 10~~) according to standard protocols, with tunnels set at 50m spacings as per specifications for monitoring rodents (Gillies and Williams 2013). Line locations were determined using DOC protocols for random start and bearing selection, with new random bearings selected if lines crossed boundaries, and new lines selected if no bearing resulted in an operationally practical deployment.

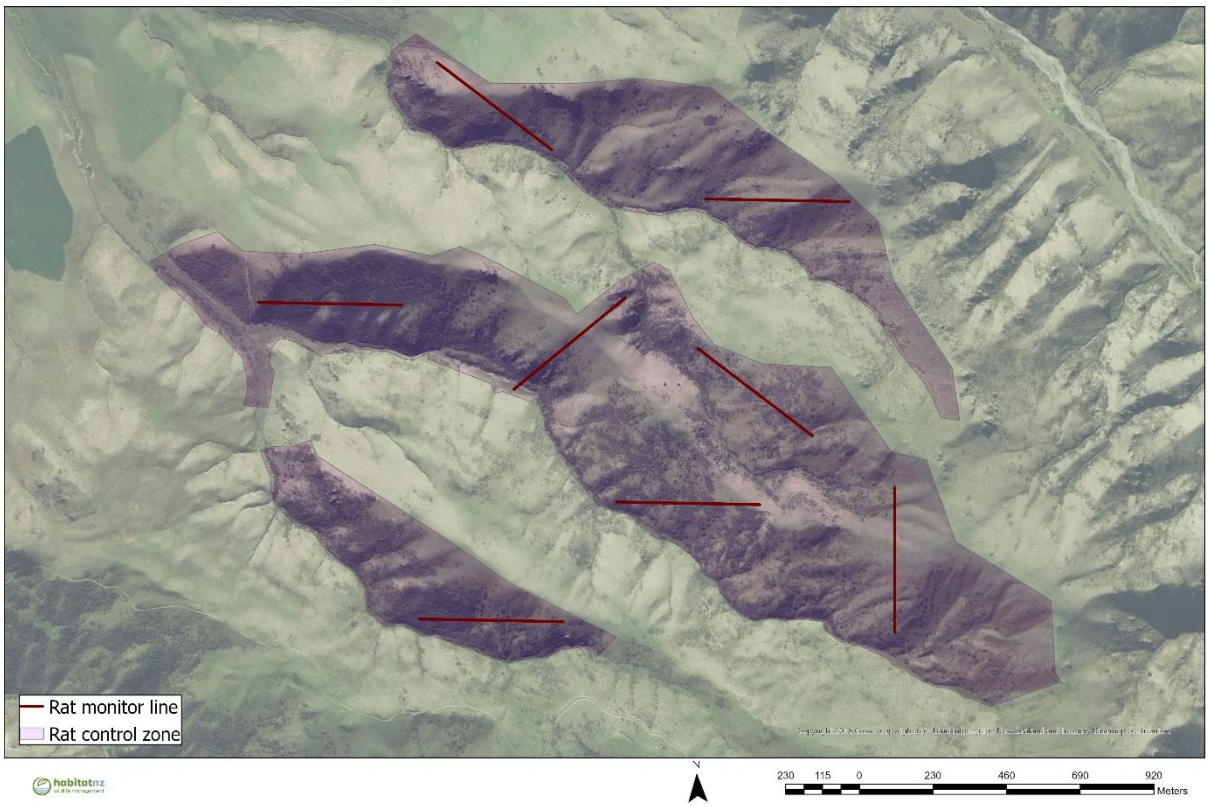


Figure 12~~12~~11~~10~~. Tracking tunnel lines for monitoring rats within the rodent ~~at~~ control zone for the BOGP.

5.5.3. Deployment locations – targeted rock stack control zone

Tracking tunnels will also be deployed across manufactured rock stacks. However, since these sites will not be large enough to use standard tracking tunnel transects, tunnels will be deployed at the same rates (as described in Section 5.5.4 above), around each manufactured rock stack.

~~5.5.3.~~5.5.4. Tracking tunnel field deployment

Tracking tunnels will be configured with the following specifications:

- A fresh pre-inked tracking card (with central ink pads) is placed into each tunnel
- Deployment for one night during forecasted fine weather (i.e. no heavy rain)
- Peanut butter is applied to the end of each tracking card as bait
- Standard tunnel dimensions (500mm length, 90mm diameter entrance)

Any disturbances to the tunnels, such as damage from other pest species, should be noted. Each card will have presence/absence of rats and mice (and other species) recorded using the standard 'DOC tracking tunnel calculator' or similar datasheet.

~~5.5.4.~~5.5.5. Tracking tunnel analysis – rodent control zone

A tracking tunnel index (TTI), a measure of relative abundance, must be calculated as per the DOC tracking tunnel guide (Gillies and Williams 2013). This must be done by an NPCA accredited designer.

5.5.6. Occupancy analysis – targeted rock stack control zone

Given the unique placement requirements of tracking tunnels around manufactured rock stacks, data from this zone will be analysed using an occupancy-based measure rather than the standard TTI calculation. This approach is well-suited to the monitoring design, providing data that can be compared across rock stacks within the control zone and, where appropriate, against the surrounding landscape to inform adaptive management decisions.

6. DATA MANAGEMENT AND RECORDING REQUIREMENTS

Maintaining comprehensive, timely records of every control and monitoring action enables accurate performance assessment, supports compliance verification, and underpins adaptive management throughout the program's lifespan. Effective data management is essential for demonstrating control effectiveness, identifying operational improvements, and ensuring regulatory compliance across all pest management activities.

All control and monitoring data must be maintained in a reliable data management system as soon after field work as possible. The system will incorporate GIS integration, mobile capture capability, and robust validation protocols to ensure data accuracy and accessibility for performance analysis and adaptive management decisions.

6.1. System Configuration Requirements

The data management system requires configuration with GPS coordinates for both pre-existing and newly deployed devices, each assigned unique identification codes and classified by device type and zone designation. Control zone boundaries, monitoring units, and user roles must be clearly defined within the system, along with comprehensive reference tables covering approved methods, trap models, bait formulations, camera settings, and target species classifications. Daily or session-end synchronisation of field data to the centralised database ensures real-time data availability for management decisions.

6.2. Essential Data Recording Standards

All field activities require standardised data capture covering core operational information and activity-specific details. Standard fields for all activities include:

- Date and time of service or monitoring activities
- Operator identification and relevant licensing information
- Device identification and GPS coordinates
- Environmental context including weather conditions and habitat notes
- General comments addressing device damage, maintenance issues, or operational anomalies

6.2.1. Trapping

Trapping operations require additional documentation of:

- Trap station identification and GPS coordinates
- Trap status (set, sprung, damaged)
- Species caught with target or non-target classification
- Numbers and biological details where determinable
- Lure type and refresh status

6.2.2. Baiting

Bait station operations must record:

- Bait station identification and GPS coordinates
- Bait type, formulation, and quantities deployed
- Bait-take volumes and consumption patterns
- Any non-target interactions observed

6.2.3. Aerial and ground-based shooting

Aerial and ground-based shooting operations require additional records including:

- Shooter identification and current licence verification
- Weapon and calibre specifications
- Target species identification and confirmed kill counts
- Operational conditions and safety compliance

6.2.4. Monitoring activities

Monitoring using chewcards and tracking tunnels require:

- Deployment and collection dates with GPS coordinates
- Calculated index scores and raw data
- Quality control notes and weather impacts

Monitoring using camera traps require:

- Image batch metadata including timestamps and storage details
- Species identification, count data, and any required statistics (e.g. detections per 2000 camera hours)
- Equipment functionality and maintenance records

6.3. Data Quality and Accessibility Standards

Data integrity depends on robust validation protocols and systematic quality assurance processes. Field-level validation through mandatory field requirements and verification within mobile applications can prevent data entry errors at source. Regular quality assurance audits reconcile field logs with database entries and GIS layers to ensure data integrity and identify systematic issues requiring correction.

All data storage utilises centralised, searchable formats with daily backup protocols and comprehensive version history tracking. Dataset accessibility for reporting officers and auditors ensures compliance with reporting requirements and supports transparent programme evaluation. The system maintains audit trails for all data modifications and provides role-based access controls to ensure data security while enabling appropriate information sharing.

7. VERIFICATION FRAMEWORK

The verification framework maintains clear distinction from outcome monitoring conducted under the BOMP programme, focusing specifically on MPMP implementation effectiveness, regulatory compliance maintenance, and provision of reliable information for adaptive management decision-making. This systematic approach provides accountability while supporting continuous programme improvement through four integrated verification levels.

7.1. Pre-Implementation Verification

Comprehensive preparation ensures programme delivery meets all regulatory and operational requirements before field activities commence.

Contractor review processes verify the following:

- Contractor agreements specify approved control methods and required reporting formats
- Environmental protocols and legal obligations are clearly defined
- Firearms licensing requirements and safety protocols are documented
- Performance standards and quality assurance measures are established.

Before initiating any field operations, comprehensive pre-deployment verification must confirm:

- Operational zones are properly defined with clear boundaries
- Risk mitigation plans are established and approved
- All regulatory approvals are secured and current
- Equipment and personnel are ready for immediate deployment.

This foundational verification prevents operational delays and ensures compliance from programme initiation.

7.2. Implementation Verification

Ongoing verification during active operations ensures contractors adhere to methodologies outlined in the MPMP and evaluate performance effectiveness.

Method adherence

Verification of adherence to prescribed methodologies, including:

- Confirmation of authorised techniques and equipment use
- Verification of approved trap types, bait formulations, and lure combinations

- Assessment of deployment protocols and safety compliance
- Review of operator competency and certification currency

Performance evaluation

Performance monitoring requiring systematic evaluation of the following key operational metrics:

- Trap catch results analysis against programme targets
- Bait-take volumes and consumption pattern assessment
- Kill count verification for shooting operations
- Comparison with established control thresholds and success criteria.

Spatial data verification

Spatial verification ensuring that logged device locations correspond with:

- GPS-logged device locations correspond with submitted maps
- Treatment areas align with approved control plans
- Zone boundaries and restrictions are properly observed
- Mapping accuracy supports reliable performance assessment.

7.3. Record Keeping Verification

Comprehensive data integrity audits examine completeness and consistency of records including date stamps, species data, and effort metrics.

Data quality assessment

- Completeness of required data fields and metadata
- Consistency of recording formats and terminology
- Accuracy of species identification and count data
- Proper documentation of environmental conditions and operational notes.

Non-target capture logs

- Incidents are properly recorded with supporting photographic evidence
- Veterinary actions are documented where applicable
- Appropriate escalation notifications to the Project Ecologist, Environmental Manager, General Manager and Technical Lead (Mammalian Pests)
- Follow-up actions and resolution measures are tracked.

System accessibility verification

Data management system verification includes verification of:

- Data storage in searchable formats with robust backup protocols
- Availability for analysis, reporting, and future planning requirements
- Metadata compliance with essential contextual details
- Operator identification and equipment specifications are recorded.

7.4. Compliance Verification

Regulatory compliance verification addresses all legal requirements through systematic review processes.

Firearms and safety compliance

Firearm authorisation oversight requires:

- Contractor documentation review for firearm use
- Licence verification and safe discharge zone compliance
- Adherence to Arms Act 1983 requirements and site-specific regulations
- Documentation of safety training and competency assessments.

Animal welfare standards verification

Humane practice standards require verification and confirmation of:

- Adherence to humane kill protocols and best practice guidelines
- Appropriate handling procedures for non-target captures
- Approved disposal methods and documentation
- Compliance with Animal Welfare Act 1999 requirements.

Comprehensive compliance tracking maintains:

Compliance tracking maintains a comprehensive compliance register with:

- Breach documentation
- Corrective action plans and status updates
- Implications assessment for programme delivery
- External verification through independent review options.

External verification options include engaging independent reviewers such as biosecurity auditors or ecological specialists to periodically assess overall programme integrity and provide governance assurance. This independent oversight enhances programme credibility and provides objective assessment of management effectiveness.

8. ADAPTIVE MANAGEMENT

Throughout the MPMP implementation period, methods and protocols will be adapted in response to changing environmental conditions, technological advances in control and monitoring, and insights gained from integrated adaptive management processes. These processes encompass annual MPMP evaluations, BOMP reports, and ARP findings. The Adaptive Management Framework provides a structured cycle of monitoring, evaluation, and refinement that maintains programme responsiveness while ensuring evidence-based decision-making and regulatory compliance including ongoing compliance with the conditions of resource consent and Wildlife Act 1953 Permits.

8.1. Core Adaptive Management Processes

Performance Evaluation undertakes comprehensive annual reviews analysing field monitoring data and operational performance indicators. The process examines:

- Trap-night capture rates and bait uptake metrics across all control types
- Incident reports and operational performance indicators
- Method effectiveness and cost-efficiency assessments
- Emerging pest activity hotspots and population trends

The resulting Performance Evaluation Report identifies underperforming methods and improvement opportunities, providing the evidence base for targeted adjustments to maintain alignment with density-reduction targets and biodiversity recovery goals.

Trigger Mechanisms establish quantitative thresholds to automatically flag methods requiring review. Pre-defined triggers including:

- Sustained drops below specified capture rates for key species
- Bait-station uptake falling below effectiveness benchmarks
- Repeated health and safety incidents or equipment failures
- Non-target capture rates exceeding acceptable thresholds
- Significant deviations from expected population response patterns

When thresholds are breached, the Trigger Register is updated and formal method-review meetings convene within sixty days, ensuring timely intervention without waiting for annual evaluation cycles.

Threat Assessment processes operate quarterly using structured risk matrices to evaluate emerging challenges, including:

- Newly detected pest incursions or range expansions
- Climate-driven habitat shifts affecting target species behaviour
- Changes in neighbouring land-use or control programmes
- Emerging biosecurity risks or regulatory changes
- Technology developments affecting operational efficiency

High-ranking threats feed directly into planning workshops, prompting proactive trials of alternative methods or resource reallocation before widespread pest establishment occurs.

8.2. Technology Evaluation

Technology evaluations undertaken every two years identify innovations in control tools, monitoring platforms, and data-management systems. Evaluation criteria include efficacy compared to current methods, cost-effectiveness analysis, non-target risk assessment, scalability potential, regulatory compliance pathways, and implementation requirements.

Promising innovations undergo pilot testing in defined trial areas alongside existing methods under contractor supervision. Results inform Technology Evaluation Briefs that guide decisions on full-scale adoption or method retirement, ensuring every change is grounded in technical rigor while maintaining regulatory compliance and community understanding.

8.3. Protocol Updates

Protocol updates follow structured processes when evaluations recommend changes, including drafting by competent personnel, approval and version control by Technical Lead (Mammalian Pests) and Environmental Manager, contractor and staff notification with training updates if required, Standard Operating Procedure revisions and field deployment, and performance monitoring of implemented changes.

This change-management pathway ensures all personnel understand new requirements before field deployment while maintaining continuity of operations and regulatory compliance.

8.3.1. Programme Evolution

Programme evolution occurs through systematic reviews adjusting operational parameters based on performance data and changing conditions, addressing monitoring frequency and spatial coverage adjustments, control intensity modifications including trap density changes, resource allocation shifts responding to emerging priorities, strategic stocktakes re-examining objectives and governance structures, and target and timeline adjustments reflecting lessons learned.

Comprehensive strategic reviews at 5, 10, 20, and 30-year programme milestones will reassess priorities and approaches based on accumulated knowledge and changing environmental conditions.

8.3.2. Documentation Standards

Documentation standards ensure institutional memory and support evidence-based decision-making through time-stamped decision logs and revision histories, pilot-test results and implementation outcome assessments, lessons-learned briefs and performance evaluation reports, comprehensive monitoring datasets and trend analyses, and stakeholder input records and consultation summaries.

This comprehensive documentation facilitates seamless knowledge transfer across personnel changes while providing audit-ready records for regulatory compliance and program accountability.

9. REPORTING SCHEDULE AND FORMATS

An integrated reporting approach ensures mammalian pest management reporting supports the broader adaptive management framework while remaining responsive to shifting on-site management needs, regulatory requirements, and advances in technology and monitoring methods. All mammalian pest management reports will be available to regulatory authorities upon request.

9.1. Annual Compliance Report

The MPMP annual reporting forms a dedicated section within the broader BOGP Annual Ecological Monitoring Report, combining monitoring data and outcomes from all ecological program components. Annual evaluations involve comprehensive analysis of monitoring data to measure program effectiveness against established performance indicators and identify necessary strategic modifications through detailed control program summaries, monitoring assessments, and comparative performance evaluations.

9.1.1. Reporting components

Control program summaries provide comprehensive overviews including dates, methods used, spatial coverage by zone, and annotated maps of control device placement. Monitoring summaries analyse trap catch statistics, camera trap and indicator indices, toxic operation outcomes, and year-on-year performance comparisons. Comparative evaluations examine progress against ecological targets and overview ecological trends including native species response and habitat improvements.

Governance and regulatory compliance reviews examine relevant legislation annually, identifying policy gaps or compliance risks and providing recommendations for procedural alignment. Adaptive management sections document operational challenges and resolutions, summarise lessons learned, and review pest control tools for efficacy improvements. Forward planning sections detail adjustments to control strategy, monitoring schedules, and resource allocation for subsequent years, along with proposed trials and threshold revisions based on experience.

9.2. Non-Target Capture Reporting

Non-target captures of ‘at risk’ or ‘threatened species’ require immediate documentation and prompt reporting to the Environmental Manager, who will contact the Technical Lead (Mammalian Pests) and the relevant technical lead for the affected animal group (such as Technical Lead Lizard or Technical Lead Avifauna). These

technical leads will determine if further reporting is required, such as Wildlife Act 1953 notifications or other legislative reporting obligations.

Comprehensive processes will cover immediate field recording, initial notification, device review and temporary suspension where necessary, incident documentation, and annual analysis. This systematic approach ensures appropriate response to non-target impacts while supporting continuous improvement and environmental safeguards through pattern identification and method refinement.

APPENDIX A. RPMP REQUIREMENTS

A.1. Plan Rules

Table 141413. RPMP PLAN RULES RELATING TO MAMMALIAN PEST SPECIES ACROSS THE BOGP

Plan Rule	Description from RPMP	Explanation of rule from RPMP
Rabbits		
Plan Rule 6.4.6.1	An occupier within the Otago region shall control feral rabbit densities on the land they occupy to at or below Level 3 on the Modified McLean Scale. A breach of this rule creates an offence under section 154N(19) of the Act.	The reason for this rule is to maintain the population levels of feral rabbits to that which prevents adverse effects on the economic values of occupiers, and in so doing, prevent the possible adverse effects on wider environmental values.
Plan Rule 6.4.6.2	An occupier within the Otago region shall, upon receipt of a written direction from an Authorised Person, control feral rabbit densities on their land to at or below Level 3 on the Modified McLean Scale within 500m of the property boundary where the occupier of the adjoining property is also controlling feral rabbit densities at or below Level 3 on the Modified McLean Scale within 500m of that boundary. A breach of this rule creates an offence under section 154N(19) of the Act.	The reason for this rule is to manage the spread of feral rabbits causing unreasonable costs to the adjacent occupier where active feral rabbit management is being undertaken by that occupier. Any written direction pertaining to non- compliance will only be initiated upon a complaint from the adjoining affected occupier.
Plan Rule 6.4.6.3	Other than under the instruction or supervision of an Authorised Person, no person shall discharge a firearm within or across a property prior to a control operation involving bait or where a control operation involving bait is being undertaken on the property to manage feral rabbits. A breach of this rule creates an offence under section 154N(19) of the Act.	The purpose of this rule is to prevent human interference prior to any necessary control operations by Otago Regional Council.

APPENDIX B. INTEGRATION WITH OTHER MANAGEMENT PLANS

B.1. Alignment with ecological management plan objectives

Table 151514: Integration of MPMP Control Zones with BOGP Management Plan Objectives.

Control Zone	LERMP	ARAMP	MSMP	ARP	TIMP	LMP	AMP
Aerial Baiting Zone	• Protect revegetation plantings from possum browse damage • Support rehabilitation success rates listed in LERMP • Enable natural regeneration in Mine Regeneration Zones	• Protect restoration plantings from rabbit damage • Support ecosystem restoration in LMU 1-4 • Enable natural grassland-shrubland transition	• Provide sanctuary buffer zone protection • Prevent pest migration into fenced areas • Support predator-free maintenance	• Protect cushionfield restoration sites from rabbit browse • Enable natural plant succession processes	• Reduce predation pressure on relocated invertebrates • Support establishment success	• Protect lizard habitat restoration areas • Reduce predation on relocated populations	• Reduce predation pressure on ground-nesting birds • Support breeding success rates
Ungulate Control Zone	• Prevent browse damage to native plantings • Protect infrastructure	• Prevent habitat degradation in restoration areas • Support natural regeneration processes • Protect investment in	• Prevent fence damage from large animals • Maintain sanctuary integrity • Support internal pest-free management	• Protect threatened	• Prevent habitat degradation affecting invertebrate populations • Protect relocated species establishment sites	• Prevent habitat modification affecting lizard populations • Protect rock stack and habitat enhancement areas	• Protect ground-nesting bird habitat • Reduce disturbance to sensitive nesting areas

Control Zone	LERMP	ARAMP	MSMP	ARP	TIMP	LMP	AMP
	from large animal damage • Enable successful mine closure vegetation establishment	restoration plantings		cushionfield communities • Prevent trampling damage to rare plants • Support Applied Research protocols			
Lagomorph Ground Control Zone	• Prevent damage to revegetation efforts • Achieve >90% seedling survival rates • Support mine closure vegetation goals	• Comply with RPMP requirements • Support natural grassland restoration • Protect planted native species	• Maintain low rabbit densities around sanctuary perimeter • Prevent warren establishment near fences	• Balance control with ecosystem function • Protect restoration plantings while maintaining some browse for ecosystem balance	• Reduce competition for invertebrate food sources • Support invertebrate population recovery	• Reduce predation pressure on lizard populations • Support habitat enhancement success	• Reduce competition for food resources • Support ground-dwelling bird populations
Predator Network Control Zone	• Protect fauna supporting ecosystem restoration • Enable natural pollination and seed dispersal • • Support biodiversity recovery goals	• Protect native fauna during restoration process • Enable natural ecosystem functions • • Support threatened species recovery	• Provide early warning system for sanctuary breaches • Complement internal predator control • Support sanctuary	• Protect rare plant pollinators • Enable natural ecosystem processes • Support research plot integrity	• Directly protect relocated invertebrate populations • Support long-term population viability	• Directly protect relocated lizard populations • Reduce predation during vulnerable	• Protect nesting birds during breeding season • Support population recovery • Enable successful reproduction

Control Zone	LERMP	ARAMP	MSMP	ARP	TIMP	LMP	AMP
			management protocols			establishment period • Support breeding success	
Possum Ground Control Zone	• Supplement aerial control in sensitive areas • Protect high-value plantings • Support specific rehabilitation objectives	• Achieve targeted control in restoration priority areas • Support ecosystem restoration milestones • Protect restoration investment	• Maintain buffer zone effectiveness • Support sanctuary management • Prevent possum establishment near fences	• Protect research plots from browse damage • Support cushionfield restoration research • Enable accurate research outcomes	• Reduce predation pressure on native invertebrates • Support ecosystem restoration processes	• Protect lizard habitat from vegetation damage • Support habitat enhancement objectives	• Reduce competition for native food sources • Support native bird population recovery
Rodenat Control Zone	• No specific benefit	• Protect developing forest ecosystems in LMU 1&4 • Support forest restoration objectives • Enable natural seed dispersal	• Provide additional protection for sanctuary buffer areas • Support integrated pest management	• Protect rare plant seed production • Support natural regeneration research • Enable ecosystem process studies	• Protect relocated invertebrate populations • Support establishment during vulnerable phases • Enable population recovery	• Protect relocated lizard populations • Reduce predation pressure • Support breeding success	• Protect ground-nesting birds • Support chick survival rates • Enable successful reproduction

Control Zone	LERMP	ARAMP	MSMP	ARP	TIMP	LMP	AMP
Targeted Rock Stack Control Zone	• Support rehabilitation objectives	• No specific benefit	• Provide additional protection for sanctuary buffer areas • Support integrated pest management	•	• Reduce predation pressure on native invertebrates from pest predators	• Reduce predation pressure on native lizards • Increase potential availability of food sources (e.g., invertebrates)	• Reduce predation pressure on native birds • Increase potential availability of food sources (e.g., invertebrates, lizards)

B.2. Integration Coordination Requirements

Table 161~~615~~: Notification periods and responsible parties for coordination between plans.

Management Plan	Coordination Required	Notification Period	Responsible Party
LERMP	Pre-planting pest control establishment	3 months prior	Technical lead (Rehabilitation)
ARAMP	Restoration milestone coordination	1 month prior	Technical Lead (Restoration)
MSMP	Sanctuary operation coordination	3 months prior	Technical Lead (Mammalian Pests)
ARP	Research plot establishment	3 months prior	Technical Lead (ARP)
TIMP	Invertebrate relocation operations	6 months prior	Technical Lead (Invertebrates)

Management Plan	Coordination Required	Notification Period	Responsible Party
LIMP	Lizard relocation operations	6 months prior	Technical Lead (Lizards)
AMP	Breeding season protection	3 months prior	Technical Lead (Avifauna)

B.3. Shared Success Metrics

Table 171716: Key performance indicators that measure success across multiple plans.

Metric	MPMP Contribution	Supported Plan Objectives
Revegetation Success Rate	Prevent mammalian pest browse in revegetation areas	LERMP, ARAMP rehabilitation goals
Relocated Species Establishment	Assist in establishment success through landscape predator control	TIMP, LIMP, AMP species recovery
Sanctuary Integrity	Reduce mammalian pest densities outside sanctuaries	MSMP predator-free maintenance
Research Plot Integrity	Minimise damage from pest activities	ARP research validity
Ecosystem Function Recovery	Native species population increase	All plans - biodiversity recovery

APPENDIX C. MPMP CONTROL ZONE METHODOLOGY CARDS

C.1. Card Usage Instructions

How to use these cards:

1. Identify your control zone from the map
2. Choose method based on target species density and operational constraints
3. Follow timing recommendations for optimal effectiveness
4. Apply success criteria to evaluate control effectiveness
5. Schedule follow-up according to card recommendations

Card Coding:

- 🟢 Green: Primary/preferred method
- 🟡 Yellow: Alternative/supplementary method
- 🔴 Red: Intensive/maximum intervention method

Safety Notes:

- Always confirm current certifications before operations
- Follow all firearm and aviation safety protocols
- Coordinate with other site activities
- Maintain communication systems for emergency response

Zone 1: Aerial Baiting Zone (2,672 ha)

Target Species: Possums (primary), Rabbits (primary), Rats (secondary)

🟢 **PRIMARY: 3-yearly Aerial Baiting**

- **When:** Every 3 years, avoid bird nesting seasons
- **Equipment:** Aircraft + GPS + toxicant storage
- **Personnel:** CAA pilot + GROWSAFE operator
- **Chemical:** 1080, pindone, or approved alternatives
- **Follow-up:** Annual chewcard monitoring

🟡 **ALTERNATIVE: Ground Supplementation**

- **When:** Between aerial cycles if populations recover
- **Equipment:** Performance-based contractor selection
- **Personnel:** Certified ground operators
- **Method:** Kill trapping or targeted baiting
- **Follow-up:** 6-month effectiveness assessment

⚠️ **Critical Notes:**

- Public notification required 48hrs prior to aerial operations
- Weather window: no rain 24hrs post-application
- Pre-feeding 1-2 weeks increases bait uptake
- Coordinate with sanctuary buffer zones
- Ground crews cannot use same toxicants as aerial operations

✅ **Success Criteria:**

- **Target: ≤6% CCI (possums), ≤3 Modified McLean Scale (rabbits)**
- **Signs: Sustained population suppression across 3-year cycle**
- **If unsuccessful: Increase ground supplementation intensity**

Zone 2: Ungulate Control Zone (2,493 ha)

Target Species: Deer, Goats, Pigs (zero-density target)

🟢 **PRIMARY: Helicopter Shooting**

- **When:** 6-monthly (Year 1), then annually
- **Equipment:** Helicopter + high-powered rifles + GPS
- **Personnel:** CAA pilot + licensed aerial shooter + ground coordinator
- **Method:** Systematic aerial shooting with GPS tracking
- **Follow-up:** Monthly during Year 1, then quarterly

🟡 **ALTERNATIVE: Ground Shooting**

- **When:** Follow-up to aerial operations
- **Equipment:** Appropriate firearms + GPS + comms
- **Personnel:** Licensed professional hunters
- **Method:** Systematic ground pursuit and elimination
- **Follow-up:** Immediate deployment after aerial operations

🔴 **INTENSIVE: Specialized Pig Hunting**

- **When:** Within 72 hours of pig detection
- **Equipment:** Trained hunting dogs + GPS tracking
- **Personnel:** Specialist pig hunters with dog handling experience
- **Method:** Rapid response systematic pursuit
- **Follow-up:** Area monitoring for 30 days post-operation

⚠️ **Critical Notes:**

- Flight planning essential - identify power lines, towers, hazards
- Weather minimums: 1000m visibility, winds <25 knots
- Coordinate with mining activities and public safety
- Ground crews require immediate deployment capability
- Pig hunting requires 72-hour response window

✅ **Success Criteria:**

- **Target:** Zero detections on camera traps, <5% browse damage
- **Signs:** No ungulate sign, successful revegetation establishment

8. **If unsuccessful:** Increase operation frequency, deploy ground teams

Zone 3: Lagomorph Ground Control Zone (1,791 ha)

Target Species: Rabbits (primary), Hares (opportunistic)

🟢 **PRIMARY: Quarterly Ground Shooting**

- **When:** Quarterly operations year-round
- **Equipment**: .22/.17 rifles or shotgun + night equipment + vehicles
- **Personnel:** Professional hunters with lagomorph experience
- **Method:** Systematic shooting with night capabilities
- **Follow-up:** Monthly McLean Scale assessments

🟡 **ALTERNATIVE: Coordinated Aerial Integration**

- **When:** Coordinate with aerial baiting schedule
- **Equipment:** Timing coordination systems
- **Personnel:** Operational coordinators
- **Method:** Complement aerial operations with ground control
- **Follow-up:** Quarterly population assessments

⚠️ **Critical Notes:**

- **Night shooting capability essential for effectiveness**
- **Coordinate with aerial baiting to prevent interference**
- **Supply fresh carcasses to predator trap networks**
- **RPMP compliance required - must maintain ≤3 McLean Scale**
- **Excludes cushionfield areas pending ARP outcomes**
- ✅ Success Criteria:
- **Target: ≤3** Modified McLean Scale, >90% seedling survival
- **Signs:** Reduced warren activity, successful plantings
- **If unsuccessful:** Increase operation frequency, night shooting priority

Zone 4: Predator Network Control Zone (1,112 ha)

Target Species: Cats, Mustelids, Hedgehogs

🟢 **PRIMARY: Year-round Kill Trap Network**

- **When:** Continuous operations with seasonal checking
- **Equipment:** SA2 Kat traps (400m intervals on tracks & ridges)+ DOC 250 traps (200meter intervals on tracks & ridges)+ bait supplies
- **Personnel:** Certified trap operators
- **Method:** Systematic trap network along landscape features. Density to be reviewed at 2 year milestone.
- **Follow-up:** Weekly Jan-May, monthly Jun-Dec

🟡 **ALTERNATIVE: Baiting Strategy Rotation**

- **When:** If trap effectiveness declines, then as required (up to 3 monthly)
- **Equipment:** Certified toxins such as para-aminopropiophenone in suitable lure
- **Personnel:** Experienced trap operators
- **Method:** Strategic bait rotation to maintain effectiveness
- **Follow-up:** Monthly effectiveness monitoring

⚠️ **Critical Notes:**

- Trap placement follows fence lines, tracks, waterways
- Multi-species traps maximize operational efficiency
- Bait must be replaced monthly or when spoiled
- Integration with lagomorph shooting provides fresh bait
- SA2 Kat traps at every second station for cats

✅ **Success Criteria:**

- **Target:** <3 detections/2000 CH (per species), Meet native species establishment criteria for site
- **Signs:** Consistent trap catches, reduced camera detections
- **If unsuccessful:** Increase trap density, review bait strategies

Zone 5: Possum Ground Control Zone (2,672 ha - same as Aerial Baiting Zone)

Target Species: Possums (supplementary to aerial operations)

🟢 **PRIMARY: Performance-based Ground Control**

- **When:** Between aerial cycles or when populations recover
- **Equipment:** Contractor-selected methods (traps/baits)
- **Personnel:** Experienced certified contractors
- **Method:** Flexible approach based on population assessment
- **Follow-up:** Annual chewcard monitoring integration

🟡 **ALTERNATIVE: Targeted Area Treatment**

- **When:** Localised population recovery detected
- **Equipment:** Kill traps or targeted baiting systems
- **Personnel:** Specialist possum control operators
- **Method:** Intensive treatment of specific problem areas
- **Follow-up:** 6-month effectiveness assessment

⚠️ **Critical Notes:**

- Cannot use same toxicants as aerial baiting operations
- Performance-based contracts enable method flexibility
- Coordinate timing with aerial baiting schedule
- Focus on areas where aerial methods less effective
- Maintain ≤6% CCI target population levels

✅ **Success Criteria:**

- **Target:** ≤6% CCI, research plot integrity maintained
- **Signs:** Sustained low possum activity, successful revegetation
- **If unsuccessful:** Increase ground control intensity, method review

Zone 6: Rodenat Control Zone (225ha - ARAMP LMU 1&4 only)

Target Species: Rats, mice (monitoring-based approach)

🟢 **PRIMARY: Monitoring-First Approach**

- **When:** Oct/Nov and April/May tracking tunnel surveys
- **Equipment:** Tracking tunnels + peanut butter bait
- **Personnel:** NPCA certified operators
- **Method:** Systematic population monitoring
- **Follow-up:** Results determine if control required

🟡 **ALTERNATIVE: Triggered Bait Stations**

- **When:** When monitoring exceeds 10% TTI threshold
- **Equipment:** Protecta LP bait stations + approved rodenticides
- **Personnel:** Certified applicators
- **Method:** Strategic bait station deployment
- **Follow-up:** Monthly bait consumption monitoring

🔴 **INTENSIVE: Comprehensive Network**

- **When:** If forest establishment triggers determined under ARAMP
- **Equipment:** >1 station per 1.5 hectares density
- **Personnel:** Professional rodenat control specialists
- **Method:** Intensive bait station network
- **Follow-up:** Weekly monitoring during active periods

⚠️ **Critical Notes:**

- Currently sparse populations - monitoring approach
- Control triggered by ARAMP forest development decisions
- Mesopredator release possible after other species control
- Weather may restrict winter monitoring access
- Coordinate with aerial baiting for maximum effectiveness

✅ **Success Criteria:**

- **Target:** 100% monitoring completed, threshold-based control
- **Signs:** Forest establishment success, bird predation reduction
- **If unsuccessful:** Increase monitoring frequency, deploy control

Zone 7: Targeted Rock Stack Control Zone (Half of WELF manufactured rock stacks only for first 2 years)

Target Species: Mice, rats (primary)

🔵 PRIMARY: Trap/Bait Station Network

- **When:** Oct/Nov and April/May tracking tunnel surveys
- **Equipment:** Protecta LP bait stations, approved rodenticides, AT220 (or equivalent)
- **Personnel:** Certified operators
- **Method:** bait station network
- **Follow-up: Occupancy monitoring quarterly, for the first** First phase results determine next steps

⚠ Critical Notes:

- Rats currently have sparse populations
- Mice currently have low to moderate
- Mesopredator release possible after other species control
- Weather may restrict winter monitoring access
- Rodents, especially mice, might use manufactured rock stacks as refugia.

☑ Success Criteria:

- **Target:** <30% occupancy
- **Signs:** Reduced pest predators in controlled rock stacks, increased positive outcomes for lizards and invertebrates in manufactured rock stacks.
- **If successful:** predator control should be expanded to other manufactured rock stacks.
- **If unsuccessful:** use data gathered from first phase to inform adaptive management.

Zone 87: Targeted Control Zones (Variable area and location)

Target Species: All species threatening relocated populations

🟢 **PRIMARY: Relocated Species Protection**

- **When:** 4-6 weeks advance of relocation operations, then pulsed 1 month out of 4
- **Equipment:** Comprehensive multi-species trap systems
- **Personnel:** Specialist teams with species expertise
- **Method:** Intensive protection during 3-5-year establishment
- **Follow-up:** Enhanced monitoring focused on protection success

🟡 **ALTERNATIVE: Avifauna Protection**

- **When:** Reactive based on nest discoveries
- **Equipment:** Site-specific trap networks
- **Personnel:** Avian specialists + trap operators
- **Method:** Breeding season protection protocols
- **Follow-up:** Nesting success monitoring

🔴 **INTENSIVE: Multi-method Integration**

- **When:** If single methods prove insufficient
- **Equipment:** All available control methods
- **Personnel:** Coordinated specialist teams
- **Method:** Maximum intervention for critical protection
- **Follow-up:** Daily monitoring during critical periods

⚠️ **Critical Notes:**

- Highest management priority and resource allocation
- Minimum 25m trap spacing for comprehensive coverage
- Pre-deployment essential to manage neophobia responses
- Success measured by relocated species survival, not pest indices
- Coordinate with all landscape-scale control operations

✅ **Success Criteria:**

- **Target:** >90% establishment success for relocated species
- **Signs:** Successful breeding populations, habitat establishment

1. **If unsuccessful:** Intensify control, extend protection period

C.2. Quick Reference Matrix

Table 181817: Quick reference matrix for control zones and control specifics in each zone.

Zone	Primary method	Personnel	Equipment	Success target
Aerial Baiting	3-yearly aerial	CAA pilot + GROWSAFE	Aircraft + toxicants	≤6% CCI (possums), ≤3 McLean Scale (rabbits)
Ungulate Control	Helicopter shooting	CAA pilot + shooter	Helicopter + rifles	>5 detections in 6 months
Lagomorph Ground	Quarterly shooting	Professional hunters	Rifles + night equipment	≤3 McLean Scale
Predator Network	Kill trap network	Certified operators	SA2 + DOC 250 traps	<3 detections/2000 CH
Possum Ground	Performance-based	Certified contractors	Flexible methods	≤6% CCI
Rodentat Control	Monitoring-first	NPCA certified	Tracking tunnels	10% Tracking Tunnel Index
Targeted Rock Stack Control	Bait Station + Kill Trap Network	Certified operators	Bait stations + rodenticide, AT220	<30% Occupancy

C.3. Integration Coordination

High Priority Coordination:

- Aerial baiting with ground shooting (prevent interference)
- Ungulate control with mining operations (safety)
- Targeted control with relocation schedules (advance preparation)

Resource Sharing:

- Lagomorph carcasses supply predator traps
- Helicopter operations coordinate across zones
- Monitoring data integrates across all zones

Seasonal Coordination:

- Winter: Limited operations, equipment maintenance
- Spring: Peak activity period, all methods active
- Summer: Continuous operations, intensive monitoring
- Autumn: Final operations, winter preparation.

APPENDIX D. FIGURES AS A3

This section provides an enlarged version of each map provided in the MPMP in order of appearance.

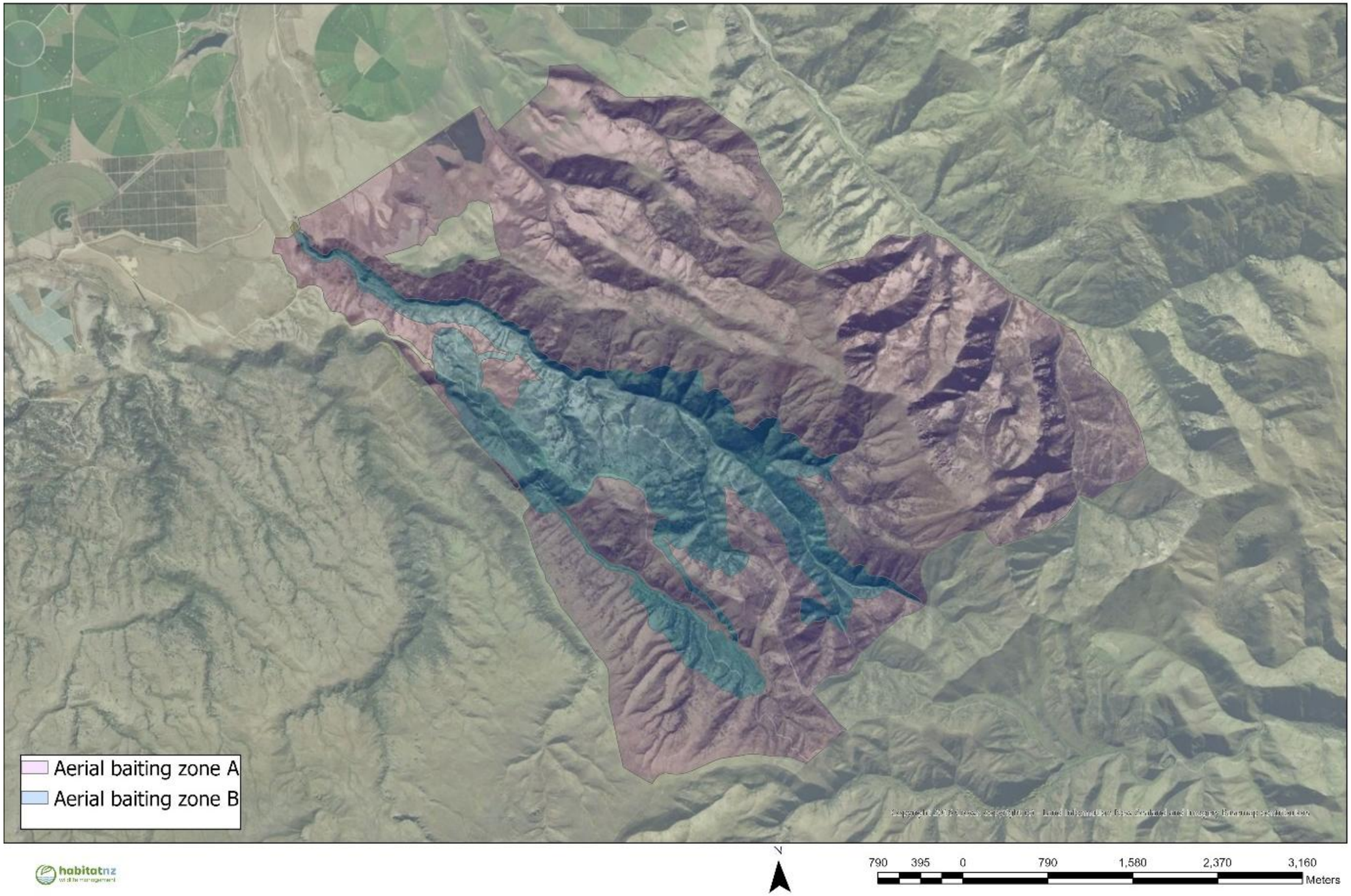


Figure 13131211: Zone for aerial baiting operations for possum and rabbit control across the BOGP.

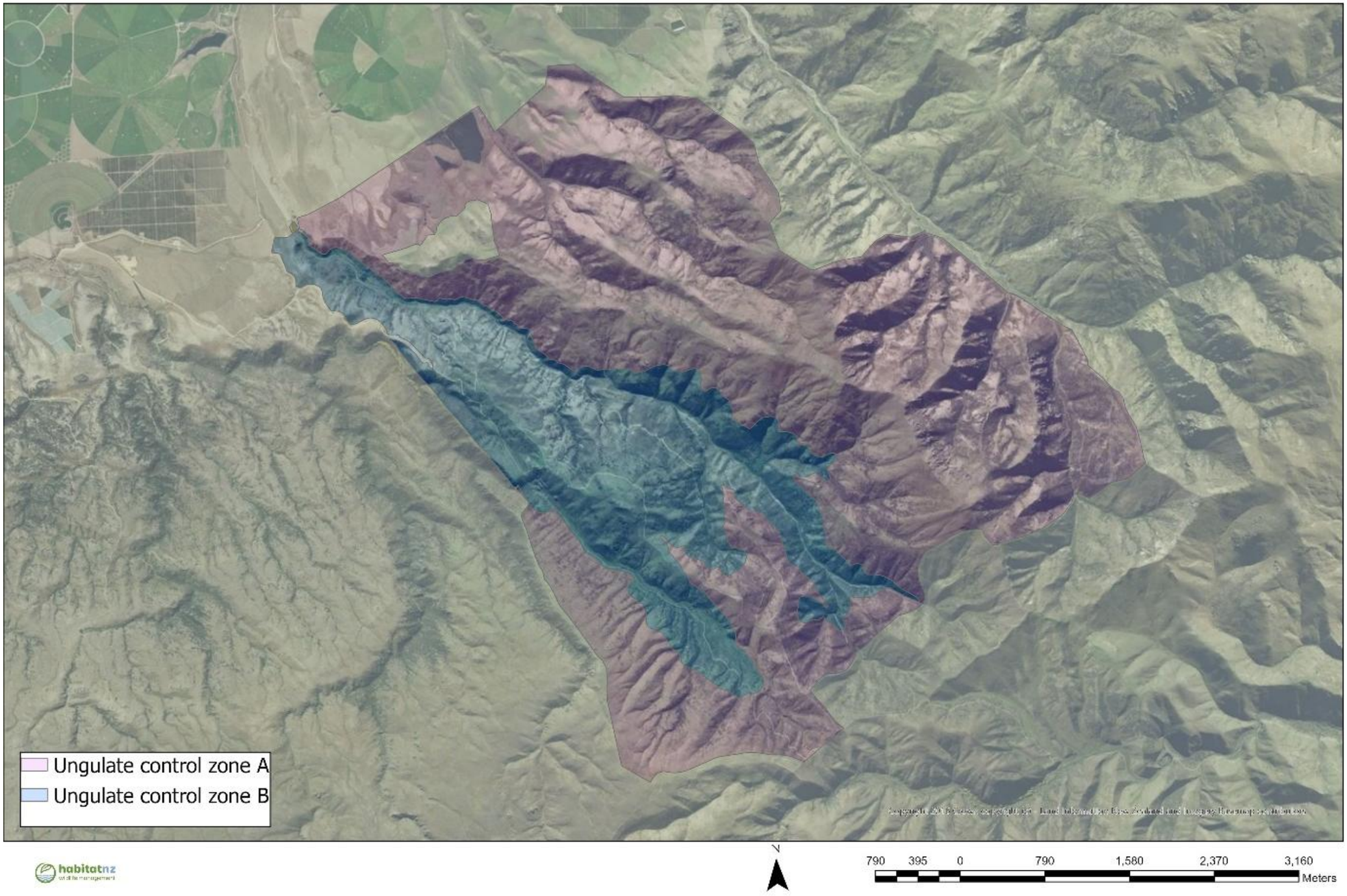


Figure 14~~1413~~12: Area for feral deer, feral goat and feral pig management across the BOGP.

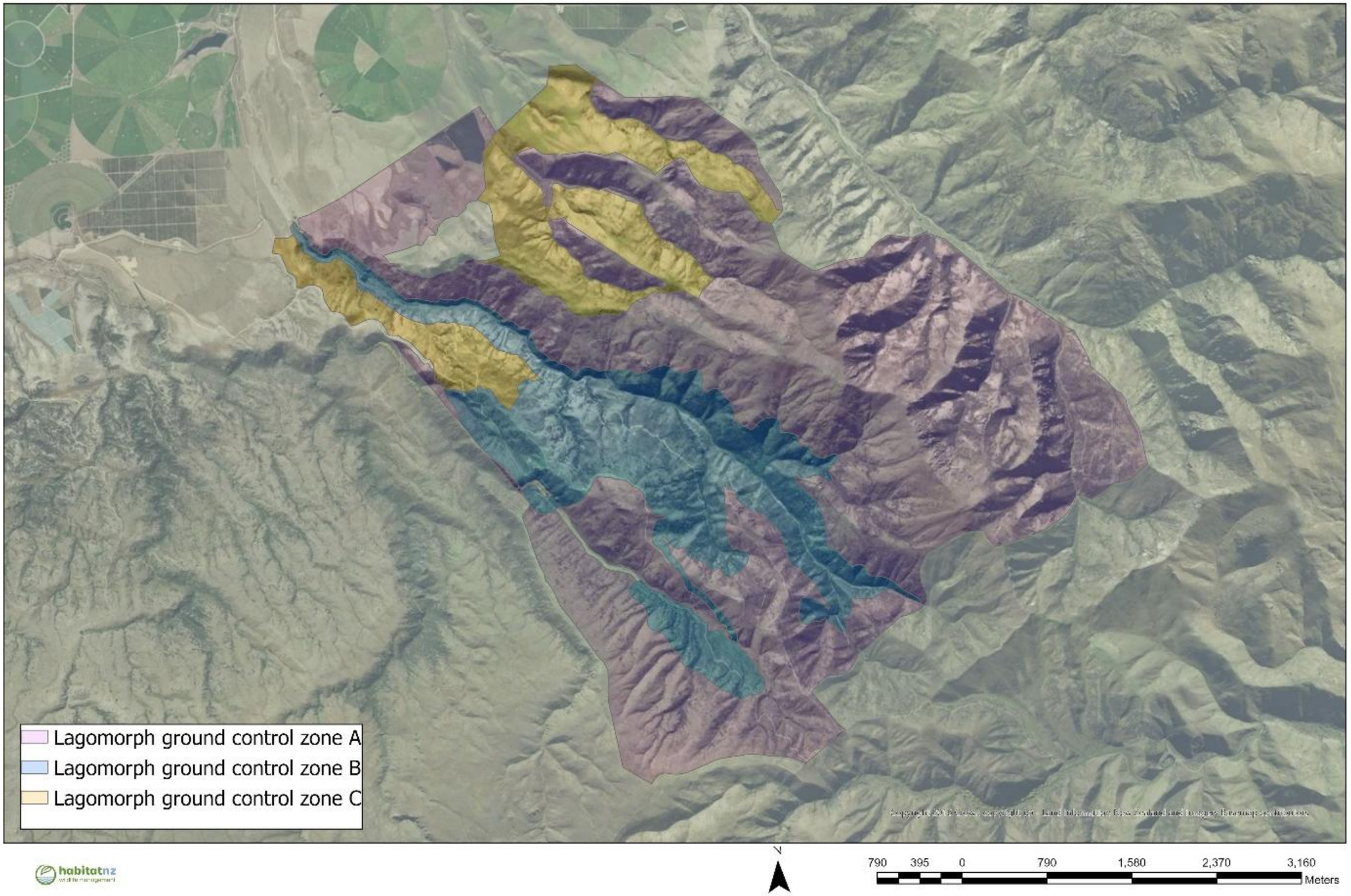


Figure ~~15151413~~: Area for Lagomorph ground control across the BOGP.

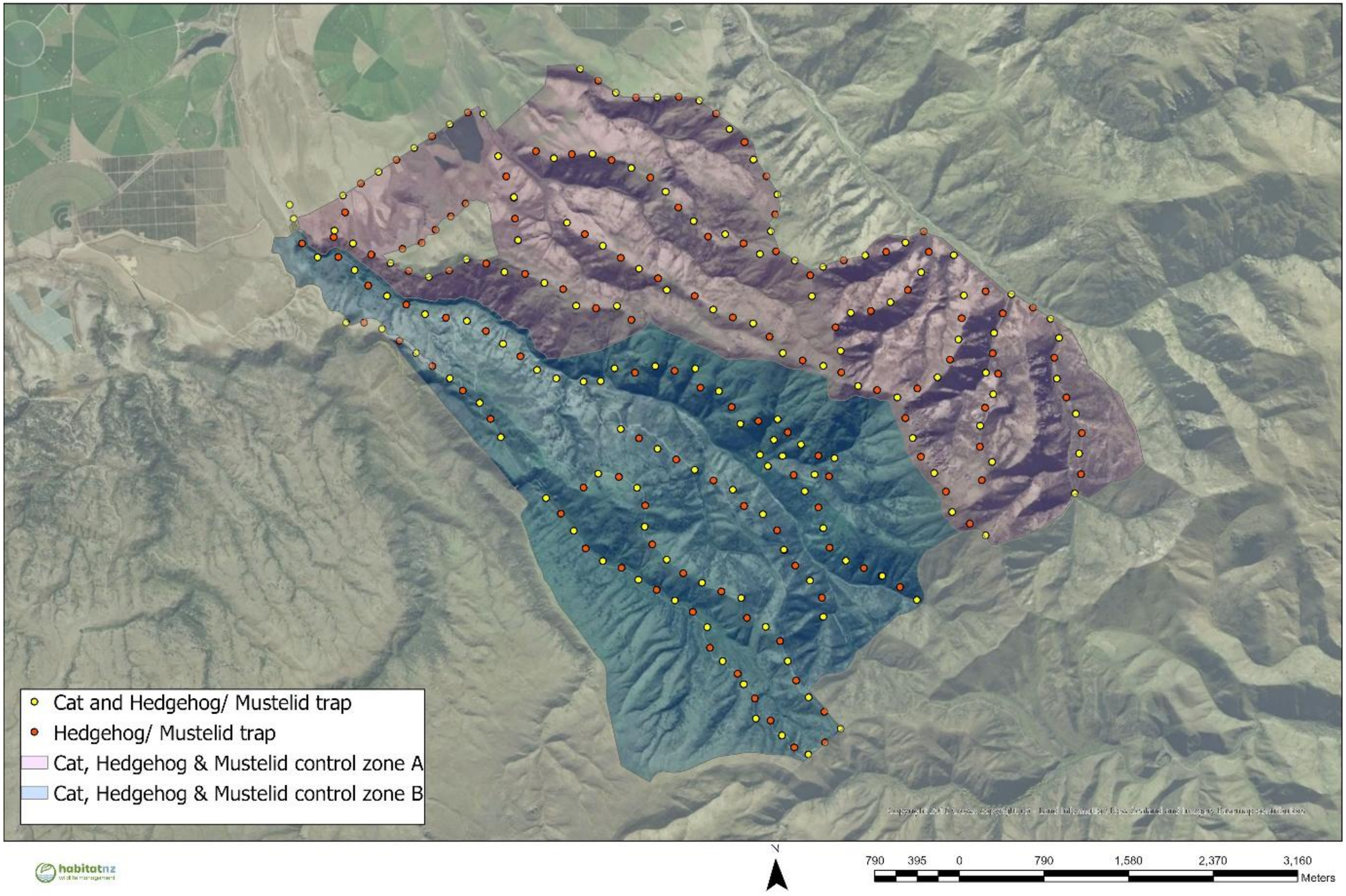


Figure ~~16161514~~: Control zone and trap placement for feral cat, hedgehog and mustelid control across the BOGP landscape.

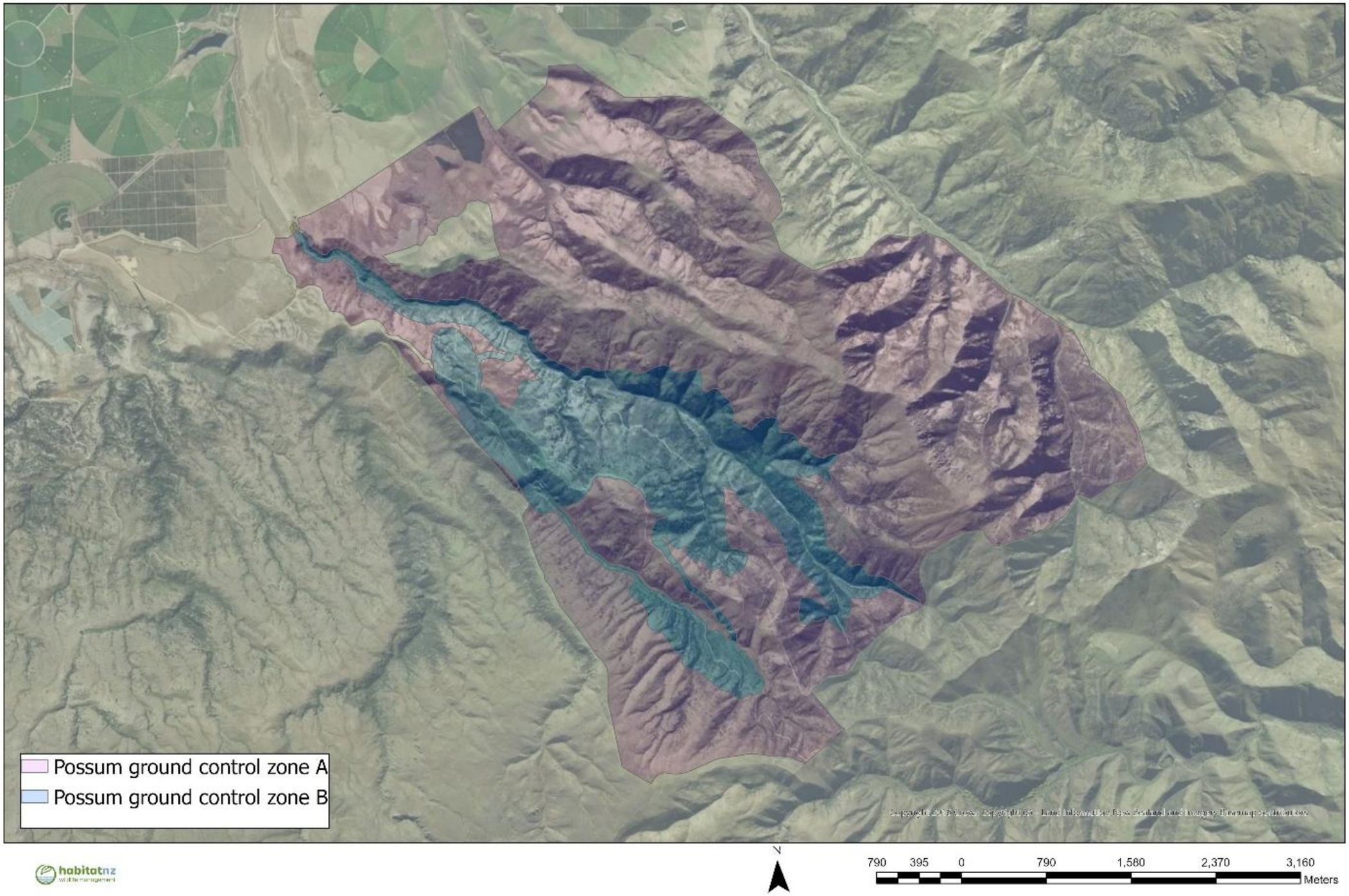


Figure 17171615: Possum ground control zone across the BOGP landscape.

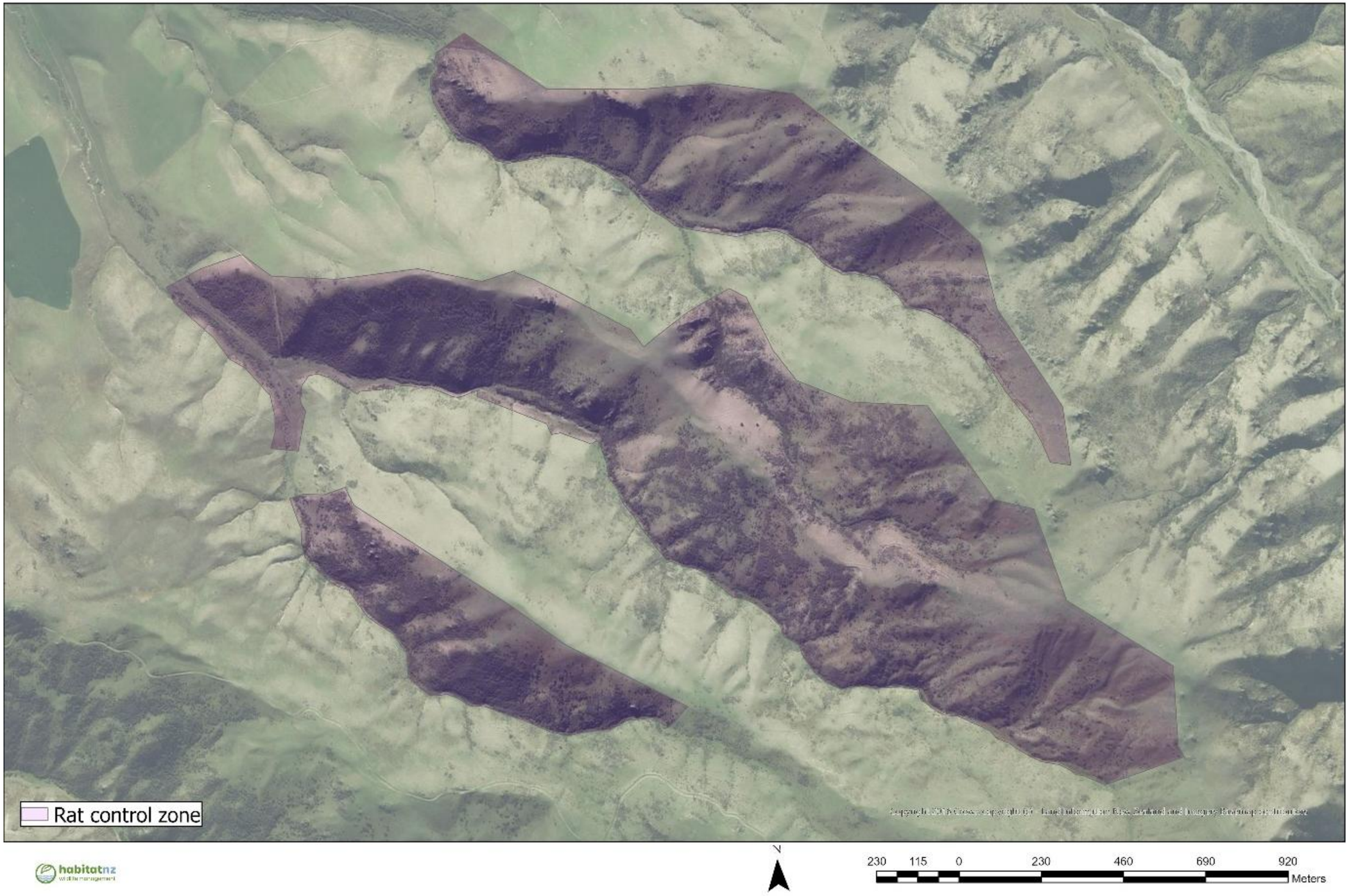


Figure 18~~1817~~16. Zone for potential rodenat control at the BOGP.

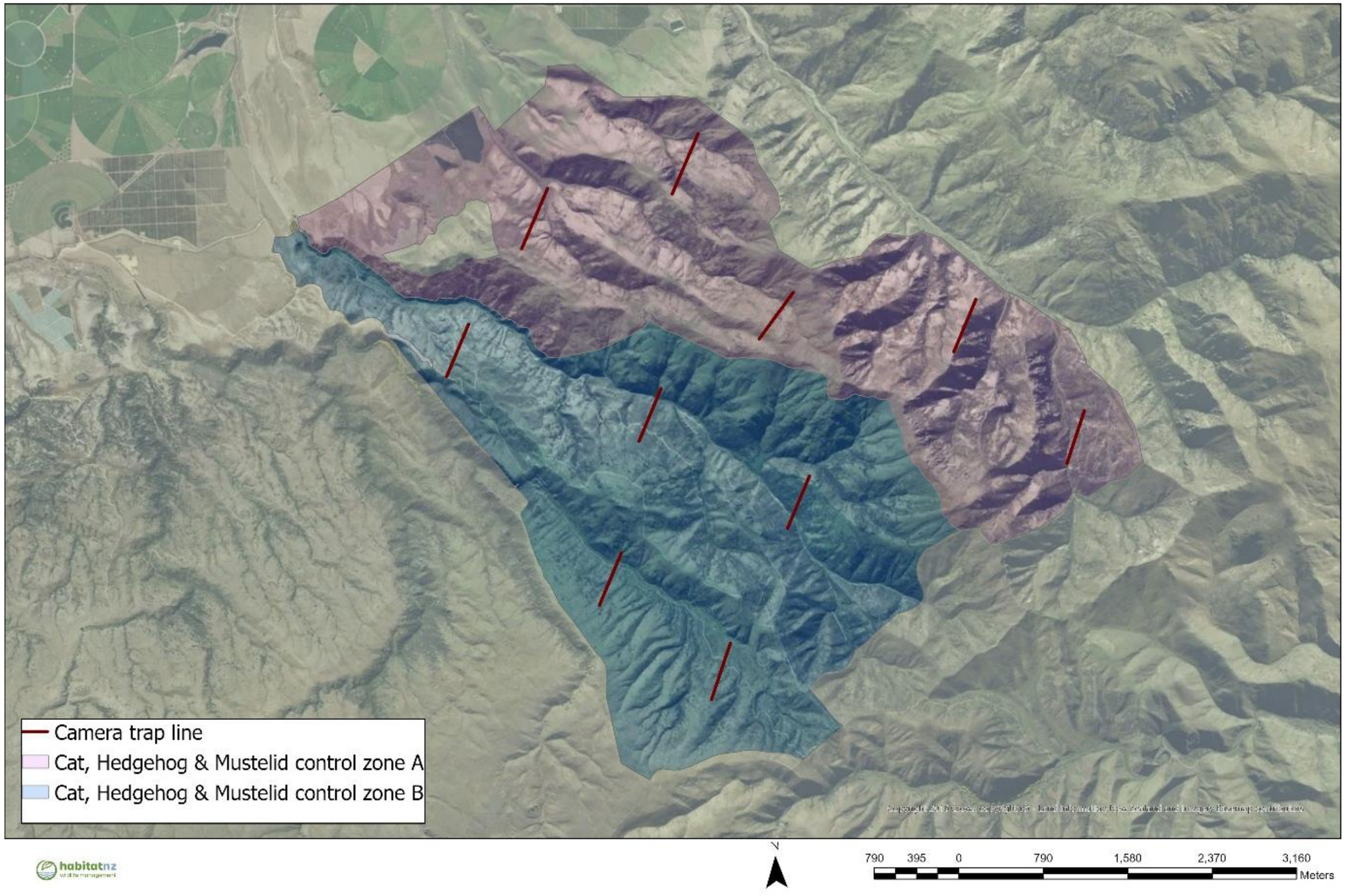


Figure ~~19191817~~: Camera trap lines for monitoring feral cats, hedgehogs and mustelids within the predator control network for the BOGP.

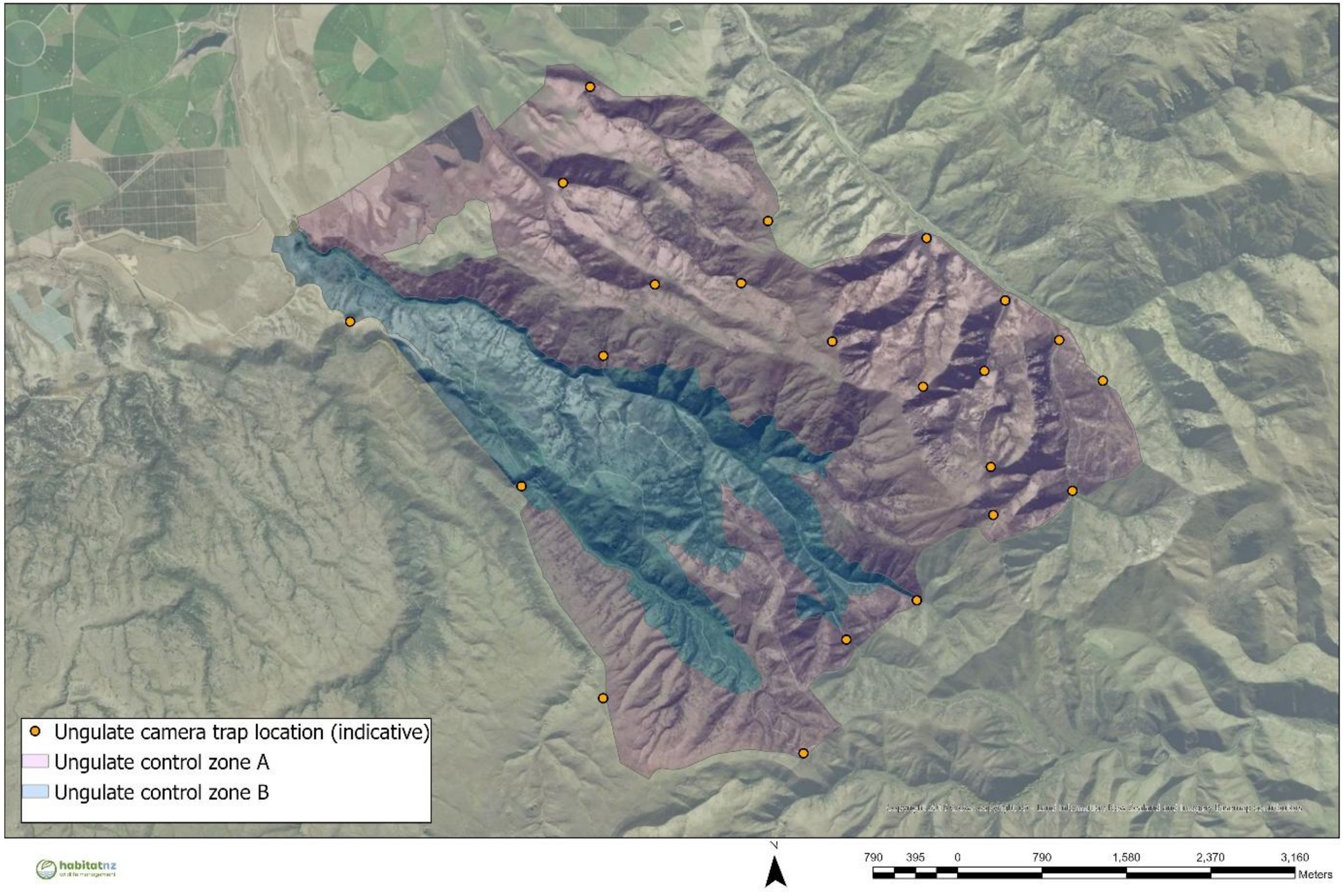


Figure 20~~2019~~18. Indicative camera trap locations for monitoring ungulates in the BOGP.

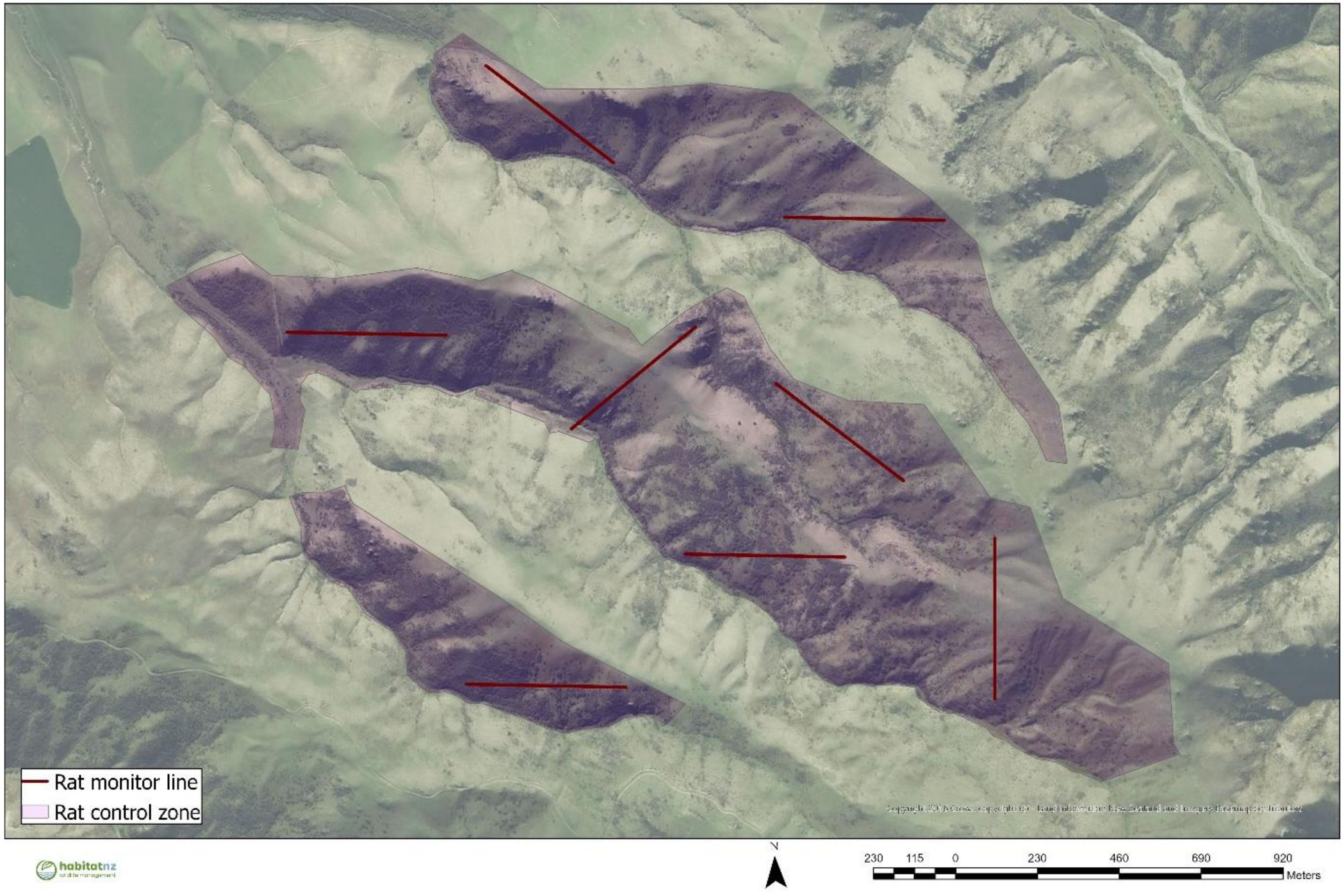


Figure 21212019. Tracking tunnel lines for monitoring rats within the rodenat control zone for the BOGP.

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