

LIZARD SURVEY AND INCIDENTAL DISCOVERY PROTOCOL FOR HIROCK LINTON QUARRY, PALMERSTON NORTH



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Gee's minnow trap placed under mānuka (*Leptospermum scorparium*) at proposed Hirock Linton Quarry expansion footprint, Palmerston North. Photographed 30 November 2022.

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1. INTRODUCTION

Hirock Limited (Hirock) has proposed the expansion of Hirock Linton Quarry in Palmerston North. The site comprises 44 hectares in total, of which 24.2 hectares forms the active quarry, one hectare contains indigenous pukatea-tawa-māhoe-(titoki)-(nīkau) forest, 0.08 hectares comprises nikau treeland, 0.58 hectares comprises wetlands, and 18.14 hectares is pasture. Hirock have proposed an expansion of the active quarry into the area currently occupied by the nīkau grove and exotic pasture (Figure 1). The forest remnant is listed as a Threatened habitat type within the Horizons Regional Councils One Plan (Horizon Regional Council 2016).

A lizard survey was required to determine whether lizards were present at detectable levels within the quarry expansion footprint and the indigenous forest fragment, as all indigenous lizards are protected under the Wildlife Act 1953. Hirock has engaged Wildlands Consultants Ltd (Wildlands) to undertake a lizard survey. No lizards were found during the survey, but an Incidental Discovery Protocol has been prepared which outlines procedures to follow in the event that one or more lizards are found during works.

2. LIZARD DESKTOP SURVEY

2.1 Potential lizard habitat

The site was assessed for potential lizard habitat prior to visiting the site. The indigenous forest at the site could provide habitat for arboreal (tree-dwelling) gecko species, while areas of rank grass could provide habitat for terrestrial (ground-dwelling) skinks and/or geckos.

Terrestrial (ground-dwelling) lizard species often occur on forest margins and in areas of rank grass, using vegetation, leaf litter, rocks, and woody and human-made debris as refuges. Indigenous lizards have also adapted to a range of exotic plants, such as rank grasslands, in response to the reduction of indigenous habitats throughout New Zealand.

Based on the habitat and lizard records from the surrounding area, the most likely species to be present would be ngahere gecko and barking gecko, with northern grass skinks also possible though very few have been recorded nearby.

2.2 Lizard records

Seven species of indigenous lizards are known to be present in the Manawatū District (Table 1). A search of the Department of Conservation's Bioweb Herpetofauna Database revealed no lizard records within site boundaries. However, there are several records of barking gecko within five kilometres of the property, and 47 records of lizards within 11 kilometres of the site (Table 1). One record of *Dactylonemis pacificus* was also recorded within 11 kilometres of the site, but observation notes suggest this may have been a translocated individual. Two records of the invasive plague skink (*Lampropholis delicata*) were also found in nearby Palmerston North.

Table 1: Indigenous lizard species recorded in the Manawatū District (Bell and Wells 2015), and number of lizard records within 11km of the site (DOC Herpetofauna database, last updated May 2022). Threat classification rankings are from Hitchmough *et al.* 2021.

Species	Common Name	Threat Classification Status	Number of Records Within 11 km ¹ of Site
<i>Mokopirirakau</i> 'southern North Island'	Ngāhere gecko	At Risk – Declining	6
<i>Naultinus punctatus</i>	Barking gecko	At Risk – Declining	18
<i>Oligosoma aeneum</i>	Copper skink	At Risk – Declining	0
<i>Oligosoma ornatum</i>	Ornate skink	At Risk – Declining	7
<i>Oligosoma polychroma</i>	Northern grass skink	Not Threatened	2
<i>Oligosoma zealandicum</i>	Glossy brown skink	At Risk – Declining	7
<i>Woodworthia maculata</i>	Raukawa gecko	Not Threatened	4

3. LIZARD SURVEY

3.1 Methods

3.1.1 Gee's minnow traps

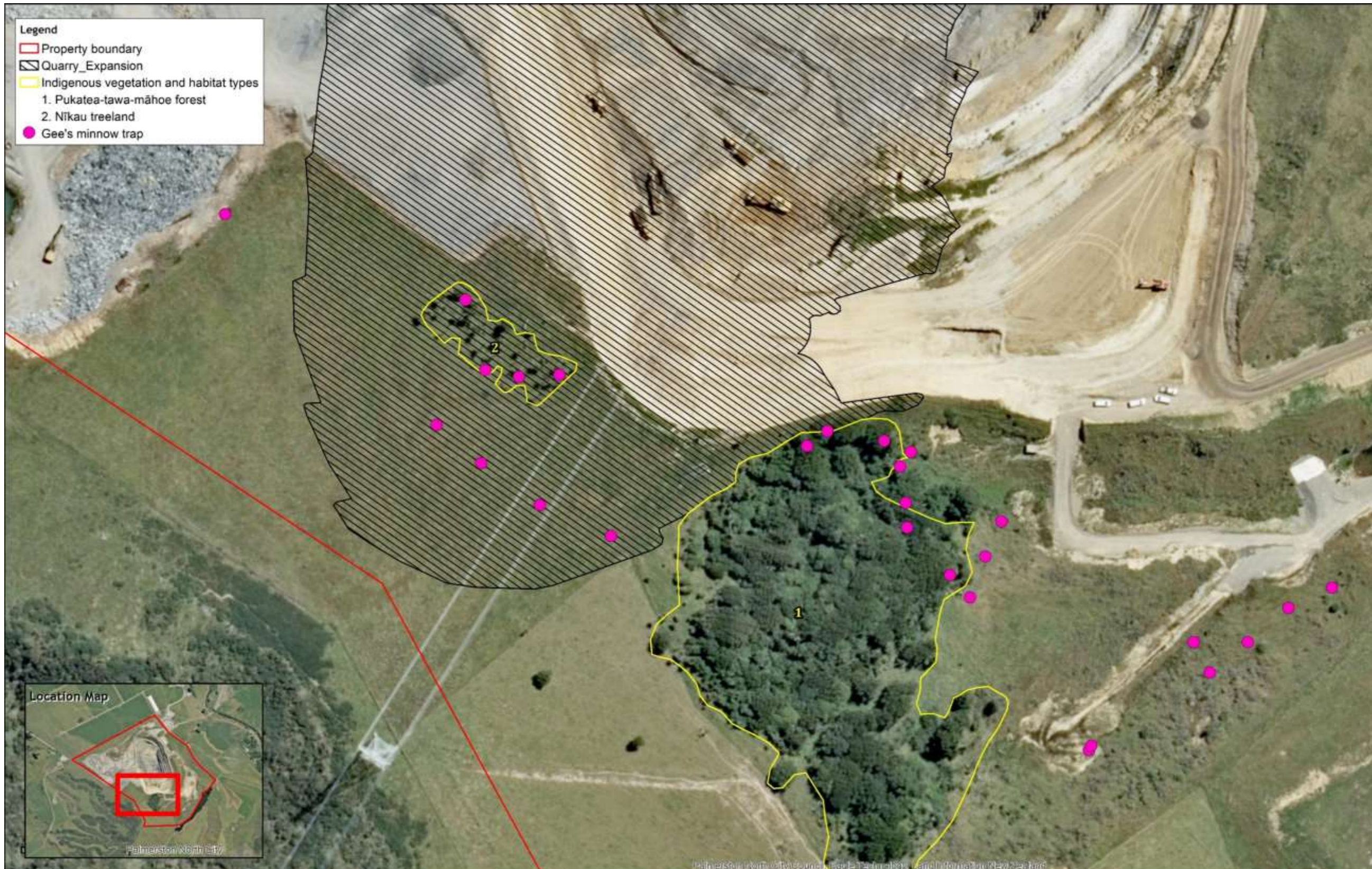
Gee's minnow traps are live capture traps used to capture terrestrial lizards. These funnel traps are metal wire-mesh cylinders with a small opening on both ends (Plate 1). Lizards enter the trap and cannot find their way back out. A small (1-2 cm) piece of tinned pear is placed in the funnels as bait, as well as grass to provide cover and a small (1-2 cm) piece of wet sponge to prevent dehydration. The traps are checked a minimum of every 24 hours, as required by the Department of Conservation for the welfare of any lizards captured.

The Gee's minnow traps were placed on 30 November 2022 and checked daily three times, then removed on 3 December 2022. Conditions were warm and sunny with some overnight precipitation. A total of 27 traps were placed in areas of potential lizard habitat: four in the nīkau treeland with long rank grass, five in areas of long rank grass amongst exotic pasture in the proposed quarry expansion footprint, eleven in the pukatea-tawa-māhoe-(titoki)-(nikau) forest, and seven in areas of long rank grass amongst exotic pasture east of the forest remnant (Figure 1).

3.1.2 Spotlighting

Spotlighting was undertaken for two and a half hours on 1 December 2022 by a suitably qualified herpetologist, assisted by a senior ecologist. Spotlighting was used to search for arboreal geckos using H15R CORE LED Lenser torches. The spotlighting was carried out on a warm, dry, and calm evening (over 12°C and no precipitation). Spotlighting was concentrated in the pukatea-tawa-māhoe-(titoki)-(nikau) forest, particularly focusing on *Coprosma* spp. shrubs and divaricating plants.

¹ 0.1 degrees of longitude or latitude equate to 11.1 kilometres.



Legend

- Property boundary
- Quarry_Expansion
- Indigenous vegetation and habitat types
 - 1. Pukatea-tawa-māhoe forest
 - 2. Nīkau treeland
- Gee's minnow trap



Figure 1. Gee's minnow trap locations, Hircock Linton Quarry, Palmerston North

Map contains data sourced from LINZ
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Report: 6016c
 Client: Higgins Family Holdings Ltd
 Ref: 05 0538
 Path: E:\GIS\HircockLintonQuarry_307\mod
 File: 6016c_Figure1_TrapLocations.mxd



Wildlands
 www.wildlands.co.nz, 0800 912192

Scale: 1:1,105
 Date: 19/12/2022
 Cartographer: KM
 Format: A3R



Plate 1: Gee's minnow trap placed at proposed Hirock Linton Quarry expansion footprint, Palmerston North. Photographed 30 November 2022.

3.2 Results

No lizards or lizards sign (e.g. scat, dropped tails, shed skins) were observed during the survey.

4. DISCUSSION

No lizards were found within the proposed quarry expansion footprint or the pukatea-tawa-māhoe-(titoki)-(nikau) forest. Given the survey effort, limited observations of lizards near the site, and isolation of potential habitat from other areas of potential lizard habitat, the presence of lizards on the property is considered unlikely. However, lizards can be highly cryptic and difficult to detect at low population densities. It is possible, but unlikely, that lizards are present at the site at very low densities that were undetectable with this level of survey effort. An Incidental Discovery Protocol has therefore been prepared for the event that lizards are discovered during the development works (Appendix 1).

ACKNOWLEDGMENTS

We are grateful to Emma Hilderink-Johnson and the team at Good Earth Matters for the opportunity to work on this assessment, and to Dave Larsen (Quarry Manager) at Hirock Linton Quarry for showing us around the site.

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- Wildland Consultants 2022: Assessment of ecological effects of quarry expansion at Linton Quarry, Palmerston North. *Wildland Consultants Ltd Contract Report No. 6016*. Prepared for Hirock Ltd. 50 pp.

INCIDENTAL DISCOVERY PROTOCOL

OVERVIEW

All endemic species of lizards found within New Zealand are protected under the Wildlife Act 1953. Incidental Discovery Protocols are hereby set out for Hirock Ltd staff and contractors, which are to be followed in the event that lizards are discovered during development works.

Where lizards could be found:

Lizards tend to be found in and on vegetation such as shrubs, trees, tradescantia, rough grass, and dense vegetation such as harakeke. They may also be found underneath objects that provide cover, whether natural or manmade, such as pieces of wood, rocks, bricks etc. They may bask in exposed sunny sites such as rocks, and may be uncovered by habitat clearance or earthworks.

INCIDENTAL DISCOVERY PROTOCOLS

If lizards are found:

- Immediately cease construction activities within 25 metres of the place of discovery.
- If possible, capture the lizard and place in a container with grass. Ensure to create breathing holes in the container for the lizard. Hold in captivity in a cool, shady location, out of the sun until a decision is made.
- Immediately inform the environmental manager/operations manager on-site who will then follow the protocol outlined in this management plan.
- Notify the project herpetologist immediately.
- Document:
 - Date and time.
 - Weather conditions.
 - Observer name(s).
 - Photographs of the animal and the location where it was found. Photograph the lizard from above trying to show the head and any markings on the upper body or back. A cell-phone picture is adequate for this and will help with identification of species.
 - Location (GPS coordinates).
 - Habitat types in which the lizard(s) were observed.
 - Species (can be confirmed by experts).
 - Sex and age (where possible).
 - If injured:
 - What part of the animal is injured? (Photograph the injury).
 - Time since injury (if known).
 - Probable cause of injury (if known).
 - Go to 'Protocols for Injured Lizards' below.

- If a carcass is found:
 - Condition of carcass.
 - Approximate time since death (if known).
 - Probable cause of death (if known).
 - Notify the Department of Conservation and ask for advice on how to proceed.
 - If the carcass is in good condition (i.e., recently deceased), arrange for it to be sent to Museum of New Zealand Te Papa Tongarewa immediately. However, if the lizard is a threatened species and/or is obviously diseased and necropsy is required, the carcass may need to be sent to Wildbase (06 350 5329), Massey University, in Palmerston North, unless advised otherwise by the Department of Conservation.
- Healthy lizards are to be released following instruction by the project herpetologist or the Department of Conservation into “similar habitat” or suitable release sites. The most likely release site would be at the pukatea-tawa-māhoe-(tītoki)-(nīkau) forest fragment which is within the quarry boundary.
- If lizards are unable to be captured and/or photographed, note as much detail as possible: was it a gecko or skink; what colour was it; what colour patterns; how big was it; whether it was robust or slender; what habitat was it found in? You may need to describe these details to the project herpetologist and the Department of Conservation.
- If the species encountered has a Threat Classification status of ‘Threatened’ (a higher Conservation threat status than ‘At Risk’) then all works must cease immediately (as soon as the discovery is made), until an assessment is made of the works programme risk for that species, and any specific management identified, including avoidance.
- Should a nationally ‘Threatened’ lizard species be encountered during construction, the project herpetologist will immediately consult with the Department of Conservation to ask for advice on how to proceed. Further works may not proceed until approval has been granted to continue or a Lizard Management Plan has been drafted for the relevant species.
- All records will be submitted by Wildlands to the Amphibian and Reptile Distribution Scheme (ARDS), which provides information for the Department of Conservation’s BioWeb Herpetofauna database¹.

PROTOCOLS FOR INJURED LIZARDS

Following the incidental discovery of an injured lizard:

- Follow the above procedures
- Immediately (within one hour) contact Massey University Wildbase Hospital and arrange for the injured lizard to be delivered to a veterinarian there. This may require a monetary contribution for care. The client will undertake all the necessary steps to enable transportation of the animal to the veterinarian in a timely manner.

¹ For information about this process visit the Department of Conservation website.
<https://www.doc.govt.nz/our-work/reptiles-and-frogs-distribution/atlas/species-sightings-and-data-management/report-a-sighting/>

- If the individual animal is able to be released after care and rehabilitation, all necessary steps will be undertaken to enable release.
- If the veterinarian determines that euthanasia is necessary for the injured animal then the veterinarian may administer sodium barbiturate to the injured animal. The body should be retained for research purposes (including possible lodgement into Te Papa Tongawera Museum of New Zealand).
- Notify the Department of Conservation on 0800 362 468.



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