Lizard Management Plan – 104 Ryans Road

Prepared for

Carter Group Limited

November 2025

PATTLE DELAMORE PARTNERS LTD
Level 2, 109 Fanshawe Street,
Auckland Central 1010
PO Box 9528, Auckland 1149, New Zealand

Tel +64 9 523 6900
Web www.pdp.co.nz

Quality Control Sheet

TITLE	Lizard Management Plan – 104 Ryans Road – 104 Ryans Road
CLIENT	Carter Group Limited
ISSUE DATE	17 November 2025
JOB REFERENCE	C052850002R001

Revision History

REV	Date	Status/Purpose	Prepared By	Reviewed by	Approved
1	5/03/25	For consultation	Lachie Davidge	Nicki Papworth	Jarred Arthur
2	15/07/25	Amended	Lachie Davidge	Nicki Papworth	Jarred Arthur
3	13/08/25	Final	Lachie Davidge	Nicki Papworth	Jarred Arthur
4	17/11/25	Amended Final	Lachie Davidge	Nicki Papworth	Jarred Arthur

DOCUMENT CONTRIBUTORS

Prepared by

SIGNATURE [redacted]

Lachie Davidge

Reviewed by

SIGNATURE [redacted]

Nicki Papworth

Approved by [redacted]

Jarred Arthur

Limitations:

This report has been prepared by Pattle Delamore Partners Limited (PDP) on the basis of information provided by Carter Group Limited. PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the report. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

This report has been prepared by PDP on the specific instructions of Carter Group Limited for the limited purposes described in the report. PDP accepts no liability if the report is used for a different purpose or if it is used or relied on by any other person. Any such use or reliance will be solely at their own risk.

Table of Contents

Table of Tables

Table of Figures

Appendices

1.0 Introduction

1.1 Background

Carter Group Limited (CGL) are applying for Fast-track consent to develop a 55.5 ha site for industrial warehousing and logistics purposes at 104 Ryans Road, Christchurch (herein referred to as 'the site'). As part of the Fast-track application, CGL has requested Pattle Delamore Partners (PDP) to prepare a Lizard Management Plan (LMP).

This LMP is required to address and manage potential and actual effects on lizard values associated with the site. These effects may arise through earthworks activities and the removal of vegetation and existing buildings and structures during the development. The LMP details management measures to avoid, remedy or mitigate effects associated with the proposed industrial development. It also outlines methodologies to be used for potentially relocating native lizards before or during construction, and personnel responsible for completing the lizard management activities following the procedures described.

1.2 Wildlife Act Authority Requirements

All native reptiles are legally protected under the Wildlife Act 1953 and the protection of habitats used by populations of native lizards (particularly threatened species) is considered a matter of national importance under the Resource Management Act (MfE, 2024). An LMP must be actioned by a suitably qualified and experienced ecologist (see Section 3.0) and work must be conducted under a valid permit granted as per the Wildlife Act Authority (WAA) 1953. A WAA permit to handle and relocate lizard specimens may be granted as part of the development's consent as per Section 42(4)(h) of the Fast-track Approvals Act 2024.

2.0 Scope and Purpose

The main purpose of this LMP is to detail the methods involved with native lizard salvage and relocation prior to or during development works. It follows Department of Conservation (DOC) Lizard Technical Advisory Group guidelines (Adams, 2019) and has been informed by a desktop review and site investigation of habitat availability (PDP, 2025). Baseline surveys for lizard specimen presence were carried out in March/April 2025 (Davidge & Arthur, 2025a). This confirmed the presence of Southern grass skink (*Oligosoma* aff. *polychroma* Clade 5).

The LMP includes the information outlined below:

- Responsibilities and competencies of persons involved in the implementation of this LMP.

- Current lizard ecological values of the site and the actual and potential effects of proposed works to native lizards.
- Methodologies associated with the implementation of this LMP, including for lizard salvage and relocation.
- Details relating to the lizard relocation site, including pest management and habitat enhancement.
- Reporting requirements, including any translocation monitoring and incident reporting (if lizards are relocated during the project).

A WAA permit is being sought for the 104 Ryans Road industrial development for a period of 10 years. The wildlife approval is for the capture, handling and release of southern grass skinks and McCann's skinks (*Oligosoma maccanni*).

3.0 Project Responsibilities

3.1 Roles and Responsibilities

The **WAA Permit Holder** is the individual or organisation (e.g., CGL) named on the WAA permit (requested to be granted with the Fast-track consent) who is responsible for ensuring that all management activities and other conditions outlined in the WAA permit are correctly administered.

A **Project Manager** (e.g., CGL Site Manager) will be responsible for ensuring the delivery of and compliance with this LMP and will liaise with the Project Ecologist to undergo the work. The Project Manager is also responsible for ensuring all personnel working onsite adhere to this LMP. Should native lizards be discovered onsite during development activities, the Project Ecologist must be informed a minimum of seven days before areas of potential lizard habitat are cleared.

A **Project Ecologist** will be responsible for overseeing the correct delivery of the lizard management activities described in this LMP. This person will be suitably qualified and experienced in the field of herpetology and will follow the guidance of the WAA permit holder. If a named Project Ecologist cannot be provided, the Director-General will review and certify the credentials of any alternative supervising ecologist to ensure appropriate expertise.

3.2 Accidental Discovery Procedure and Responsibilities

All personnel working onsite (e.g., site contractors) are responsible for informing the Project Manager, Project Ecologist and/or WAA permit holder if any lizards are found onsite once works have begun, and the Project Ecologist will be contacted to help identify the species. Personnel must communicate accidental discoveries to these parties on the same working day as they occurred. If it is discovered that the species is of an 'At-Risk' or 'Threatened' conservation status

and is not described in this LMP, the DOC Operations Manager for Mahaanui must be notified immediately (mahaanui@doc.govt.nz) for further advice. Management actions will be determined by the Project Manager and Project Ecologist in consultation with DOC to ensure 'At Risk' or 'Threatened' lizards are appropriately managed.

4.0 Project Site - Lizard Values

4.1 Field Survey – Habitat Suitability

A site visit was conducted by PDP ecologists on 27th November 2024 to assess whether the site contained potential lizard habitat (Davidge & Arthur, 2025b). It was determined that suitable habitat was present at the site that could support a native lizard population, although no lizard specimens were observed during the site visit.

Potential lizard habitats included rank grass, rock and woody debris piles, dense shrub and understory foliage, leaf litter, mature trees, and old farm buildings (Appendix A). The rock and woody debris piles, hay bale stockpiles, old farm buildings, and rank grass around the site provide potential habitat for native skinks and Waitaha geckos. The mature trees and old farm buildings also provide habitat for jewelled geckos (Purdie, 2022). Dense rank grass and hedgerows surrounded the open pasture grassland, providing habitat for native skink species (see Table 1) observed during the desktop assessment (Appendix A).

4.2 Desktop Assessment

In addition to the field survey, a desktop assessment evaluated database records within a 13 km radius of the site boundary (Table 1). The assessment found several native lizard species records within 2 km of the site, including:

- McCann's skink (*Oligosoma maccanni*),
- Northern grass skink (*Oligosoma polychroma*), and
- Waitaha gecko (*Woodworthia brunnea*).

Southern grass skink (*Oligosoma* aff. *polychroma* Clade 5) have also been found within 5 km of the site. This indicated that these four taxa may be present on the project site, particularly within the abandoned farm buildings and rank grasses. Within a 13 km radius of the site, Canterbury spotted skinks (*Oligosoma lineoocellatum*) and jewelled geckos (*Naultinus gemmeus*) have also been observed (Table 1).

Of particular importance are species such as the Canterbury spotted skinks, jewelled geckos, southern grass skinks and Waitaha geckos. Each of these species are categorised as 'At Risk' or 'Threatened' (Hitchmough et al., 2021; Table 1).

Table 1: Native herpetofauna observed within 13 km of the development site		
Common Name	**Species**	**Conservation Status (Hitchmough et al., 2021)**
Canterbury spotted skink	*Oligosoma lineoocellatum*	Threatened – Nationally Vulnerable
Jewelled gecko	*Naultinus gemmeus*	At Risk – Declining
McCann's skink	*Oligosoma maccanni*	Not Threatened
Northern grass skink	*Oligosoma polychroma*	Not Threatened
Southern grass skink	*Oligosoma* aff. *polychroma* Clade 5	At Risk – Declining
Waitaha gecko	*Woodworthia brunnea*	At Risk – Declining

Two plague skinks (*Lampropholis delicata*) have been observed within the 13 km boundary. Plague skinks are defined as an 'Unwanted Organism' in the Biosecurity Act 1993 (MPI, 2023) and therefore was not included in Table 1.

4.3 Baseline Lizard Surveys

Baseline lizard surveys were conducted by PDP herpetologists between the 31st of March to the 3rd of April 2025. Traps were installed within potential lizard habitat across the proposed development site and left inactive for five weeks to allow lizards to become acclimated to their presence (see Figure 1 for trap layout). Upon the survey commencement, traps were activated, checked and baited daily. Additionally, two nights of nocturnal spotlighting were undertaken to determine whether any native gecko species were within the habitats around the site.

Overall, three Southern grass skinks (*Oligosoma* aff. *polychroma* Clade 5) were captured over the four days of trapping (Table 1), and no native gecko species were discovered during nocturnal spotlighting. For additional information relating to the baseline lizard surveys at 104 Ryans Road (see Davidge & Arthur, 2025).

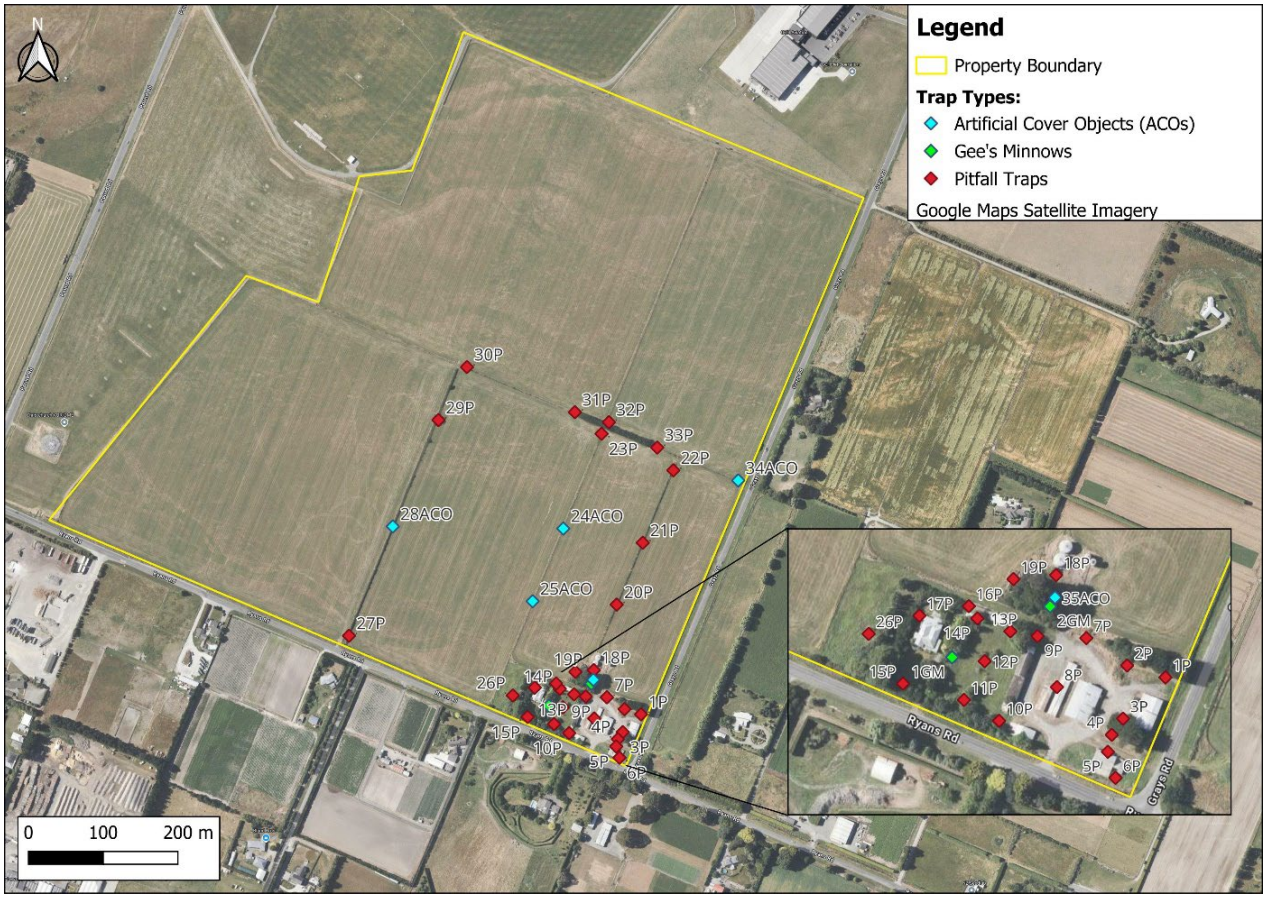


Figure 1: Map of lizard trap placement at 104 Ryans Road. Traps were installed in areas of potential lizard habitat within the property boundary. Individuals were captured in traps 10P, 16P and 27P.

5.0 Actual and Potential Effects on Lizards

5.1 Effects on Lizards

The proposed works will involve the development of 55.5 ha of land, resulting in the removal of approximately 4 ha of potential lizard habitat across the site. Habitats include rank grass, dense foliage (e.g., shrubs), leaf-litter, rock and wood piles, old farm buildings and mature trees (Appendix A). Removal of these habitats and site works (e.g., earthworks) may cause adverse effects to native lizards in the area, including habitat destruction, loss of foraging sites and refugia, and may potentially result in injury or mortality.

5.2 Managing Effects

The following measures will be taken to avoid, remedy or mitigate potential negative effects of lizard values in the area:

- Vegetation clearance to deter lizards will occur between October to April (inclusive), when temperatures are warmer and native lizards are more active. This will better allow lizards to avoid pre-development activities. Low-impact methods such as livestock grazing or mowing areas of rank grass should be used to deter lizards from the area.
- Lizard tracking and trapping surveys were conducted between the 31st of March to the 3rd of April (see Section 4.3). Native lizards were discovered onsite, therefore salvage and relocation works will need to be carried out before construction works may commence. Vegetation clearance of large trees and shrubs will be required to allow for further construction activities to occur. The Project Ecologist must be onsite to oversee vegetation removal to ensure any lizards found during clearance works are safely collected and translocated to the relocation site. This will involve searching vegetation for lizards before it is removed from the site.
- Accidental discovery of lizards during development works will follow the procedures outlined in Section 3.2 of this LMP.
- Captured lizards will be relocated to an area outside of the site. The proposed relocation area is located adjacent to one of the project site's Stormwater Management Areas (LOT 200; Appendix B).
- Lizard habitat enhancement work will need to be undertaken several months prior to salvage and relocation to ensure the proposed relocation site correctly fulfils the requirement established in Principle 6 of the DOC lizard salvage and translocation guidelines (Adams, 2019). See Davidge & Arthur (2025c) for the Lizard Habitat Enhancement Plan for the site (Appendix C).

6.0 Methodology

6.1 Pre-works Vegetation Management

If possible, livestock grazing should be undertaken in areas of rank grass (examples provided in Appendix A) to reduce the amount of potential habitat available for native lizards. Livestock grazing should occur a minimum of three days before development work commences to allow any lizards in the area to relocate offsite. It is recommended that this method be used in combination with vegetation searches (Section 6.2.4) for improved effectiveness.

6.2 Lizard Salvage and Relocation

Baseline surveys have confirmed the presence of Southern grass skinks at the project site. The methods described below are relevant to the salvage and translocation of lizard specimens caught onsite before or during (i.e., accidental discovery) the proposed construction works.

6.2.1 Timing

Vegetation clearance should be conducted in between the 1st of October to the 30th of April (inclusive) and during suitable weather conditions (warm and low wind) when lizards are most active. Lizard salvage work is not undertaken during winter months as lizards will likely be in a lowered state of torpor (mild hibernation) and/or are inactive so will be detected less often during salvage efforts.

6.2.2 Salvage Footprint

The salvage effort will be concentrated in areas with suitable lizard habitat. This was determined during prior habitat availability surveys (Davidge et al., 2025b) and subsequently confirmed during the baseline lizard survey (Davidge & Arthur, 2025a). Areas proposed for vegetation removal will be clearly marked before works commence. Lizard salvage and relocation efforts will focus on marked areas as well as areas where lizards were captured during the baseline survey (see Figure 1).

6.2.3 Pre-clearance Salvage and Relocation

Pitfall traps (installed under Artificial Cover Objects (ACOs)) and Gee minnow traps will be installed throughout the salvage footprint in suitable habitats. They will be left for a minimum of four weeks prior to the commencement of lizard salvage works. These traps will be left inactive (e.g., filled with vegetation or other materials) and covered so native lizards may escape. Additionally, the bottom of the trap must be perforated to allow water drainage. Upon initiation of salvage works, traps will be activated, and trapping will commence for five days or until no native lizards are captured for three days in a row. At a

minimum, traps must be checked once every 24 hours. Any instruments that may come into contact with a lizard must be sterilised to reduce the risk of infection or disease, and a separate holding bag or container must be used for each individual. Equipment must also be cleaned and dried if used between different sites. If high numbers of native lizards are being captured on day five, then additional trapping effort may be required. This will be determined by the Project Ecologist.

Additionally, the manual disestablishment of habitats will be conducted by suitably qualified ecologists and overseen by the Project Ecologist. This will involve rock and log flipping, raking of leaf-litter, systematic habitat searches (including destructive habitat searches) and removal of large habitat objects and materials to deter lizards from re-inhabiting the site.

6.2.4 Supervision of Vegetation Removal

The Project Ecologist must be present on site during vegetation removal to ensure lizards are not harmed or killed during works (i.e., vegetation is searched during removal and any lizards found relocated safely offsite). The Project Ecologist will be responsible for working with machine operators to remove the upper layer of vegetation and trees. Vegetation will be searched to remove any native lizards not captured during pre-clearance salvage and relocation works and will include searches of large mature tree branches where native geckos (specifically jewelled geckos) may be taking refuge (species outlined in Table 1). Additionally, the clearance of buildings and other structures will be supervised by the Project Ecologist.

Large trees should be felled and piled off site and will be used to create habitat features at the relocation site should any native lizards be captured and relocated.

6.2.5 Lizard Relocation Protocol

To ensure the appropriate care is taken to minimise disturbance, injury or mortality to capture lizards, the Project Ecologist will ensure the following protocols are followed:

- Animals must be appropriately prepared for transport, including the provision of sufficient food and water as appropriate to the species, condition of individuals, and expected length of the journey, to avoid pain, injury or distress. Lizards should be transported in a ventilated plastic container or a cloth bag (only during salvage, not relocation). Containers and/or bags will be kept at ambient temperature and out of direct sunlight, and vegetation will be added to provide shelter during the relocation process.

- Individuals handling lizards will sterilise their hands and all equipment used during the salvage and relocation work.
- Native lizards should not be physically contained for longer than three hours during relocation.
- The relocation site is located in a Stormwater Management Area adjacent the project site. This is as close to the original habitat area as possible to reduce unnecessary stress to captured individuals.
- The perimeter of the site will be screened with a temporary lizard fence to prevent translocated lizards returning to the development area during the construction phase.
- The relocation site will be appropriately prepared for the lizard species being relocated, including pest trapping and habitat enhancement (see Lizard Habitat Enhancement Plan (Davidge & Arthur, 2025c); Appendix C).
- Lizard handling will be kept to a minimum to reduce unnecessary stress and disturbance to captured individuals.

The translocation of lizards must follow the Animal Welfare Code of Welfare for Transport Within New Zealand (MPI, 2018) and any conditions detailed in the project WAA permit. Lizards must only be handled by the named Project Ecologist or under their direct supervision.

6.2.6 Data Collection

All salvaged lizards will be numbered, and the following data will be collected and submitted to DOC for addition to the herpetofauna database:

- Date and time of capture.
- Weather conditions upon capture.
- Capture methodology (i.e., trap type or search method).
- Lizard species, age, sex and life stage, presence of tail (i.e., original or regrowing/ regrown), snout-to-vent length and vent-to-tail length.
- Photograph of each individual, including dorsal and ventral surfaces.
- Photograph of the capture location and release point at relocation site.

6.2.7 Accidental Injury and/or Death of Lizards

Should an injured or dead native lizard be found during salvage and relocation work, vegetation clearance or during construction work, the Project Ecologist is responsible for informing DOC and the WAA permit holder who must contact the DOC Operations Manager (mahaanui@doc.govt.nz) within 48 hours of the event.

If the lizard deaths are unexplained, then the lizard bodies should be sent to Massey University Wildlife Post Mortem Service for necropsy or as otherwise advised by the Mahaanui DOC Operations Manager. If the body can be delivered within 72 hours then it should be chilled. If delivery of the body will take longer, then it should be frozen. It is the responsibility of the WAA permit holder to inform the Project Ecologist of the next step (as detailed in the WAA permit).

The incidental mortality of southern grass skinks or McCann's skinks is authorised, provided that best efforts are taken to avoid incident mortalities in accordance with this LMP and the Wildlife Approval Authorisation.

6.3 Relocation Site

The re-establishment and long-term protection of displaced lizards relies on a suitable release site(s) being chosen. A release site should offer similar or better habitat to the original site, to ensure survival and long-term persistence of the lizard population translocated to the new site.

A relocation site has been located at Grays Road Stormwater Management Area (SMA)(LOT 200, Appendix C). The area allocated for lizard release is outside of the flooding zone and therefore flood risk in the area is low. Additionally, grazing at the site has ceased (circa July 2025 onwards), and habitat enhancement works (eco-piles and planting) will be completed before lizards are released into the area.

An assessment of the relocation site based on Principle 6 of the lizard salvage guidelines (Adams, 2019) has been undertaken and is presented in Table 2 below. Information relating to lizard habitat enhancement works to be undertaken at the relocation site is provided in the Lizard Habitat Enhancement Plan (Davidge & Arthur, 2025c).

Table 2: Assessment of the relocation site at Grays Road SMA (LOT 200)		
Principle 6	**Description**	**Comment/Assessment**
1. The site must be ecologically appropriate and have long-term security	It must be suitable through time for the lizard species being salvaged. The location must be within the species' natural geographic range. There must be no mixing of genetically structured populations.	The relocation site is located directly east of the Ryans Road construction area, adjacent to the proposed Stormwater Management Area (LOT 200). Lizards will therefore be released near to the original habitat of Southern grass skinks.
	It must be an appropriate distance from the salvage site to ensure lizards cannot move back into harm's way, yet provide microhabitats and climate.	A suitable location has been found at 104 Ryans Road, adjacent to the SMA (LOT 200; Appendix B). This is close by, but the perimeter will be screened to prevent the re-incursion of lizards back into the development footprint for the duration of the construction works.
2. The habitat at the site must be suitable for the salvaged species	It should be predominantly indigenous vegetation that is sufficiently large and continuous to support both the translocated lizards and the eventual established population over all the species' life history stages.	The translocation site currently has inadequate lizard habitat available and will therefore require habitat enhancement works to make it viable for lizard relocation. The site currently consists of ungrazed pasture grassland. A Lizard Habitat Enhancement Plan has been developed (Davidge & Arthur, 2025c).
	It must contain sufficient resources (food, cover, retreats) for both the salvaged lizards and the eventual established population, be buffered from climatic extremes (drought, cold) and not	Habitat enhancement works will be conducted to provide suitable refugia and foraging sites for relocated lizards. See Davidge & Arthur (2025c) for more details of the relocation site and proposed enhancement.

Table 2: Assessment of the relocation site at Grays Road SMA (LOT 200)		
Principle 6	**Description**	**Comment/Assessment**
	located in areas that are prone to flooding or coastal erosion.	Additionally, the site is not prone to flooding and is not found along a coastline (see Throssel, 2025).
	There must be sufficient resources for both resident and translocated lizards or 'improved' for lizards to ensure resources are available.	Habitat enhancement works (Davidge & Arthur, 2025c) will be conducted to provide suitable refugia and foraging sites for relocated lizards.
3. The site must provide protection from predators	Habitat at the site must be secure from predators or effective pest control must be in place to allow the salvaged lizards to establish a population.	Pest control is recommended to be undertaken at the site, including pest trapping and monitoring to ensure potential mammalian predators are reduced in the area. Trapping and monitoring will be conducted for two years (Davidge & Arthur, 2025c).
4. The site must be protected from future human disturbance	Land tenure at the site must ensure long-term protection from disturbance.	The lizard relocation site will be protected in perpetuity to ensure relocated lizards are not affected by any future developments in the area. It is understood that the site will remain in private ownership, with some form of covenant or other protection afforded to it.

6.4 Adaptive Management

To achieve a net-positive outcome for any native lizards onsite, changes to this LMP may be required. The LMP is therefore considered a "living document". If any changes to the LMP are required, a variation to WAA permit must be approved to before authorisation is given. The current LMP (Revision 4, dated November 2025) is the authorised document. Changes will follow best practice guidelines as recommended by DOC and CCC.

7.0 Reporting

7.1 Salvage and Relocation

A report summarising the salvage and relocation results will be prepared and submitted to CCC and DOC within 30 days from the completion date of the work. Specifically, this report will include:

1. Results of lizard salvage and relocation work including:
    a. Photos of lizard salvage methods utilised.
    ~~b.~~ Photos of lizards captured (including photos of the salvage and relocation areas). ~~and,~~
    c. A map showing the location of lizard upon capture and upon release.
    d. The species and number of any lizards detected, captured, and released.
    e. The results of all surveys and monitoring.
2. Descriptions of how lizard management activities outlined in this LMP were followed, including conditions detailed in the WAA permit and associated resource consent conditions.
3. An Amphibian and Reptile Distribution Scheme (ARDS) card detailing information relating to captured lizards (see Appendix D) (also to be provided to herpetofauna@doc.govt.nz).
4. A brief summary regarding the outcomes of this LMP, including any improvements/changes that should be implemented in future.

Translocation Monitoring will occur the following summer post-relocation (between October to April inclusive). A Translocation Monitoring report summarising the findings of the translocation will be prepared following details outlined in Section 7.3 below, and submitted to the relevant authorities (CCC and/or DOC).

7.2 Incident Monitoring and Reporting

An incident report will be provided to CCC and DOC within five working days of its occurrence and will include the following details:

- Any occurrences of lizard injury or mortality; and,
- Measures to avoid, remedy or mitigate.

7.3 Translocation Monitoring

Should translocation monitoring be required (see Section 6.3), a Translocation Monitoring Report will be prepared and submitted to CCC and DOC detailing:

- Monitoring methods used.
- Details around the success of habitat enhancement activities on site.
- Assessment of habitat and food availability at site.
- Weather data across the monitoring period, and
- Monitoring results and recommendations.

8.0 References

Adams, L. (2019). *Key principles for lizard salvage and transfer in New Zealand* (pp. 1–23). Department of Conservation. https://www.doc.govt.nz/globalassets/documents/about-doc/concessions-and-permits/wildlife-research-permits/lizard-salvage-and-transfer-nz.pdf

Davidge, L., & Arthur, J. (2025a). *104 Ryans Road Development Project – Memorandum of Baseline Lizard Survey Results* (Memorandum C052850002M001; pp. 1–5). Pattle Delamore Partners.

Davidge, L., & Arthur, J. (2025b). *104 Ryans Road Development Project – Memorandum of Lizard Habitat Assessment Results*. Pattle Delamore Partners.

Davidge, L., & Arthur, J. (2025c). *Lizard Habitat Enhancement Plan – 104 Ryans Road Industrial Development Project* (Memorandum C052850002M002; pp. 1–12). Pattle Delamore Partners.

Hitchmough, R., Barr, B., Knox, C., Lettink, M., Monks, J., Patterson, G. B., Reardon, J. T., van Winkel, D., Rolfe, J., & Michel, P. (2021). *Conservation status of New Zealand reptiles, 2021* (New Zealand Threat Classification Series 35). Department of Conservation.

MfE. (2024). *Resource Management Act 1991*. New Zealand Government. https://www.legislation.govt.nz/act/public/1991/0069/latest/DLM230265.html

MPI. (2018). *Code of Welfare: Transport within New Zealand*. Ministry for Primary Industries. https://www.mpi.govt.nz/dmsdocument/46015-Code-of-Welfare-Transport-within-New-Zealand

MPI. (2023). *Biosecurity Act 1993*. New Zealand Government. https://www.legislation.govt.nz/act/public/1993/0095/latest/DLM314623.html

Purdie, S. (2022). *A Naturalists Guide to the Reptiles & Amphibians of New Zealand* (1st ed.). John Beaufoy Publishing.

Throssel, B. (2025). *104 Ryans Road: Flood hazard assessment* (Memorandum C052850001M001; pp. 1–8). Pattle Delamore Partners.

Appendix A: Site Photographs

Appendix A-1: Rank grass found along the south-east fence line.

Appendix A-2: Rank grass extent found between the old farmhouse and farm buildings.

Appendix A-3: Rank grass, hay bales and dense vegetation present along the northern extent of the old farm buildings.

Appendix A-4: English ivy (*Hedera helix*) and leaf litter found along the eastern fence line adjacent to the old farmhouse.

Appendix A-5: Leaf litter, woody debris and other materials found in an old farm building.

Appendix A-6: Extensive rank grass adjacent to open pasture farmland provides a potential lizard habitat.

Appendix A-7: Rank grass found along the northernmost fence line within the existing open pasture farmland.

Appendix A-8: Old farm buildings provide ideal habitat for native lizards including hay bale stacks and rank grass.

Appendix A-9: Mature canopy trees, understory plants and rank grass.

Appendix A-10: The lizard relocation site located adjacent to the 104 Ryans Road development site.

Appendix B: Landscape Concept Plan – Translocation Site

A. PROPOSED LANDSCAPE CONCEPT PLAN (1:4,000 @ A3)

PROPOSAL - PROPOSED LANDSCAPE CONCEPT PLAN

LEGEND

- Site Boundary
- A — Lizard planting area (1000m²)
- Habitat rock / log piles
- Lizard exclusion fence

*see plant palette page for plant species

LIZARD HABITAT AGGREGATE PILE

LIZARD HABITAT WOOD PILE

LIZARD EXCLUSION FENCE

LIZARD HABITAT CONCEPT PLAN (1:500 @ A3)

PROPOSAL - LIZARD HABITAT CONCEPT PLAN

STREET PLANT PALETTE

SPECIMEN TREES

Upright Red Maple *(Acer 'bowhall')*

Snakebark Maple *(Acer davidii)*

Scarlet Oak *(Quercus coccinea)*

STORMWATER MANAGEMENT AREAS

SPECIMEN TREES

Mānatu/Lowland Ribbonwood *(Plagianthus regius)*

Tōtara *(Podocarpus totara)*

Kōwhai *(Sophora microphylla)*

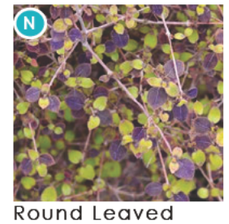
Kanuka ***(Kunzea ericoides)***

LIZARD HABITAT

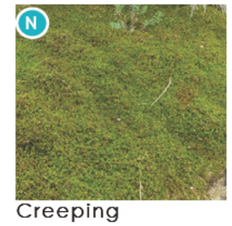
Mingimingi (Coprosma propinqua)

Silver tussock (Poa cita)

Scrub pōhuehue (Muehlenbeckia astonii)



Round Leaved Coprosma (Coprosma rotundifolia)



Creeping pōhuehue (Muehlenbeckia axillaris)

SHRUBS / GROUNDCOVERS

Hunangamoho/ wind grass *(Anemanthele lessoniana)*

Kakaha/bush flax *(Astelia fragrans)*

Mikimiki/ mingimingi *(Coprosma propinqua)*

Mānuka/tea tree *(Leptospermum scoparium)*

Purei/swamp sedge *(Carex secta)*

Tarata/lemon-wood *(Pittosporum eugenioides)*

Kōhūhū/black matipo *(Pittosporum tenuifolium)*

Koromiko *(Veronica salicifolia)*

Kāpuka/broadleaf *(Griselinia littoralis)*

Appendix C: Lizard Habitat Enhancement Plan – 104 Ryans Road Industrial Development Project

PATTLE DELAMORE PARTNERS LTD
Level 2, 109 Fanshawe Street,
Auckland Central 1010
PO Box 9528, Auckland 1149, New Zealand

Tel +64 9 **523 6900**
Web **www.pdp.co.nz**

memorandum

TO	Bruce Van Duyn	FROM	Lachie Davidge
	Carter Group Limited	DATE	13 August 2025
RE	Lizard Habitat Enhancement Plan – 104 Ryans Road Industrial Development Project		

1.0 Introduction

Carter Group Limited (CGL) has applied for Fast-track consent to develop a 55.5 ha site for industrial warehousing and logistics purposes at 104 Ryans Road, Christchurch. Pattle Delamore Partners (PDP) has undertaken a baseline lizard survey at the site and found the presence of Southern grass skinks (*Oligosoma* aff. *polychroma* 'Clade 5'). PDP has since prepared an amended Lizard Management Plan (LMP) to protect the lizard population through onsite mitigations, and salvage and relocation.

This memorandum has been prepared by PDP, on behalf of CGL, to provide details relating to a proposed lizard relocation site. The relocation site is adjacent to the development area at 104 Ryans Road, specifically it is directly adjacent to the proposed Stormwater Management Area (LOT 200; see Appendix A). This memorandum also includes information relating to lizard habitat enhancement and pest control at the site. It should be read in direct conjunction to the Lizard Management Plan (Davidge et al., 2025).

The relocation site has been determined following the guidance outlined in Principle 6 of the Department of Conservation (DOC) lizard salvage and transfer guidelines (Adams, 2019).

2.0 Relocation Site

The relocation site is near to the 104 Ryans Road construction area, adjacent to the Stormwater Management Area (LOT 200; see Figure 1 & Appendix A). Principle 6 of the DOC lizard salvage guidelines (Adams, 2019) details requirements for receiving sites and their carrying capacity in the long-term, specifically:

1. The site must be ecologically appropriate and have long-term security;
2. The habitat at the site must be suitable for the salvaged species;
3. The site must provide protection from predators; and,
4. The site must be protected from future human disturbance.

Given the proximity of the relocation site, it contains the same climatic conditions as the development area. The existing condition of the site is such that it currently has inadequate lizard habitat available. It will therefore require habitat enhancement works to make it viable for lizard relocation. The vegetation composition at the site consists of ungrazed pasture grassland, with several mature exotic tree species along an existing fence line (Figure 1 & Appendix A). Recommendations on habitat enhancement for lizards at the site are provided in Section 3 below.

Additional to habitat enhancement, we recommend that pest control be undertaken at the relocation site. This includes pest trapping to ensure potential mammalian predators are reduced in the area. Existing pest populations at the site are unknown; however, a search of the iNaturalist database within a 5 km boundary of 104 Ryans Road found a number of mammalian predators potentially present (Table 2). Only research-grade observations were used to ensure greater identification accuracy of observed species.

The lizard relocation site will be protected in perpetuity to ensure relocated lizards are not affected by any future developments in the area. It is understood that the site will likely remain in private ownership, with some form of covenant or other protection afforded to it.

Additional details relating to the Principle 6 requirements for lizard salvage and translocation are contained in Appendix B.

Figure 1. Proposed lizard habitat concept plan for the 104 Ryans Road development site. See Appendix A for more detailed information.

3.0 Habitat Enhancement

Lizard habitat enhancement is necessary to ensure suitable habitats are available at the proposed relocation site to support indigenous lizards. Sections 3.1 to 3.3 detail habitat enhancement activities that should be carried out to ensure lizard values are met at the relocation site.

3.1 Enhancement Planting

3.1.1 Planting Preparation

Enhancement works will be carried out at the relocation site by first removing any pest plants, including the selective removal of mature exotic trees to allow additional sunlight to reach the ground. Pasture grassland within the area should be left to continue to grow long to provide habitat for indigenous skinks. However, rank grass will need to be selectively controlled around the base of native saplings to allow native plants to successfully establish post-planting. This should only be necessary during the first two years post-enhancement planting (see Appendix D for timeline), after which native plants should be large enough not to require maintenance.

3.1.2 Planting Methodology

The planting season is typically autumn to spring (inclusive), when the ground is softer due to higher rainfall levels. If planting is planned outside of these times, the area should be irrigated to increase plant survival. This will increase the chance of successful root establishment and subsequent growth of plant species (CCC, 2005). Silver tussock (*Poa cita*), creeping pōhuehue (*Muehlenbeckia axillaris*), scrub pōhuehue (*Muehlenbeckia astonii*) and mingimingi (*Coprosma propinqua*) should be planted in patches around the site (see Appendix A) to create a mosaic of lizard habitat (e.g., refugia and foraging habitats). Establishing plants in this manner provides space for lizards to bask between refugia sites (e.g., plantings and eco-piles).

Creeping pōhuehue and silver tussock should be sized at PB3 (approx. 1.7 L pots), and larger plants such as scrub pōhuehue, mingimingi and round-leaved coprosma should be sized at PB5 (2.5 L pots). Larger planting sizes will reduce the time needed for plants to become established at the site and will therefore create adequate lizard habitats sooner. The selected plant species are appropriate for use near Christchurch International Airport (e.g., will create minimal habitat for avifauna).

Table 1 below details the recommended plant species for lizard habitat enhancement and their benefits for enhancing and protecting lizard values.

Table 1: Species recommended for lizard habitat enhancement planting

Common Name	Species	Benefit to Lizards	Mature Height (m)
Creeping pōhuehue	*Muehlenbeckia axillaris*	Cover, retreats and food	0.1 – 0.2
Silver tussock	*Poa cita*	Cover and retreats	0.3 – 1
Scrub pōhuehue	*Muehlenbeckia astonii*	Cover, retreats and food	1 – 2.5
Mingimingi	*Coprosma propinqua*	Cover, retreats and food	1 – 3
Round-leaved coprosma	*Coprosma rotundifolia*	Cover, retreats and food	2 – 5

3.1.3 Planting Maintenance

Infill planting may be required to replace plants that have not successfully established. Visual assessments of the planting will be undertaken during monitoring visits, taking note of plants that have died and/or noting the presence of large gaps (more than 1 m^2) within the planting zone. Gaps or dead plants should be replaced with appropriate native species. Typically, 10% of species planted during the initial plantings will perish during the first growing season and will need to be replaced. These plants will need to be replaced with individuals of the same species.

3.2 Eco-piles

Eco-piles are another effective way of creating lizard habitats at a relocation site. Eco-piles are created using woody debris, rocks and/or other materials found on site that are piled together to form complex three-dimensional structures (e.g., Herbert et al., 2023). These structures can be used by lizards as cover, retreats and foraging habitats. Any exotic trees removed during enhancement works should be split into small sections and piled together to create eco-piles (see Appendix A for details). Up to 24 eco-piles will be spaced sporadically around the site to provide space for lizards to bask between habitat features.

3.3 Lizard Exclusion Fencing

A temporary lizard exclusion fence will be built at the relocation site to stop translocated individuals from migrating back into the active construction area. Exclusion fencing should be made from a resistant material (e.g., polythene mat) and will be installed around the circumference of the relocation site. The fence will be approximately 1 m high and supported by waratahs, with the bottom partially buried (approx. 200 mm) to stop lizards from escaping underneath. Waratahs should be placed on the outward side of the fence so lizards cannot climb out. Upon the completion of development works, the exclusion fence shall be removed.

3.4 Pest Control

Predator control will be undertaken before lizards are released and for two years post-release to reduce predation pressure whilst lizards establish within the new release site. As only three native skinks were found during the baseline survey, the area is likely to contain a small population. Thus, CGL (or suitably qualified individuals on CGL's behalf) will be responsible for undertaking pest control for a period of two years (see Appendix D for details).

Pest trapping will begin two months before lizard relocation works are to commence. It will be conducted over four weeks, with traps being baited in week one and then actively set and checked (including rebaiting) from weeks two to four. Predator control (in particular, poison-baiting) should be undertaken by a suitably qualified operator with a current controlled substances license.

A list of mammalian pests observed within a 5 km radius of the relocation site has been provided in Table 2 below. Only research-grade iNaturalist observations were used. Additionally, mammalian predators listed under the Predator Free 2050 initiative have been included.

Kiore (*Rattus exulans*) has been excluded from Table 2 as the species is largely restricted to the southern parts of the South Island and offshore islands (Haami, 2012). Cats (*Felis catus*) are likely to be present in the area due to its proximity to urban housing, but have also been excluded from Table 2 as individuals may be domesticated pets.

Table 2: Pest mammals observed within a 5 km boundary of the 104 Ryans Road relocation site		
Common Name	**Species**	**Pest Management Status[1]**
Brush-tailed possum	*Trichosurus vulpecula*	Site-led
European hedgehog	*Erinaceus europaeus*	Not Applicable
European rabbit	*Oryctolagus cuniculus*	Sustained Control
Ferret	*Mustela furo*	Not Applicable
House mouse	*Mus musculus*	Not Applicable
Norway rat	*Rattus norvegicus*	Not Applicable
Ship rat	*Rattus rattus*	Not Applicable
Stoat	*Mustela erminea*	Not Applicable
Weasel	*Mustela nivalis*	Not Applicable

3.4.1 Hedgehogs, rats and mustelids

There is currently no best practice method for trapping European hedgehogs (*Erinaceus europaeus*). However, DOC 150, 200 and 250 traps are known to capture individuals as a byproduct of trapping effort. These traps are also suitable for other common mammalian predators such as ship rats (*Rattus rattus*), Norway rats (*Rattus norvegicus*), stoats (*Mustela erminea*), ferrets (*Mustela furo*) and weasels (*Mustela nivalis*) that may be present in the area. Traps will be set alternately in 50 m increments at the relocation site (approx. two traps) and baited (bait type varies depending on target species). Traps should be left baited but inactive for the first week before being activated and baited (e.g., live-trap) for three weeks. This will allow individuals to become accustomed to the trap, increasing trapping success rates.

3.4.2 House mice

Although DOC 150 and 200 inadvertently target mice, their capture rates are often low (pers. obs., Lachie Davidge). Rodent bait stations are typically installed at 50 m increments along fence lines and areas of dense vegetation and/or woody debris. The relocation site is approximately 1000 m^2 and will therefore require only two traps set at opposing corners along the existing fence line. Two months before lizard salvage and relocation works, rodent bait stations should be baited with brodifacoum for four weeks. Specifically, two weeks of pre-feeding (e.g., peanut butter) followed by four weeks of poison-baiting, after which bait stations are emptied of any remaining poison-bait.

3.4.3 Brush-tailed possums

Trapinator traps are recommended for brush-tailed possums control (DOC, 2019). Traps are attached to a tree or fence post, approximately 1 m from the ground. Typically, traps are spaced at 100 m increments within the designated trapping area; however, the relocation site is small (approx. 1000 m^2) so only one trap will be necessary. Traps should be installed on trees or other structures that show signs of possum movement (e.g., claw marks up a tree trunk). Once installed, traps should be left baited but inactive for the first week before being activated and baited (e.g., live-trap) for three weeks. This will allow individuals to become accustomed to the trap, increasing trapping success rates. Possum traps are typically baited using peanut butter or apples.

[1] Information was taken from Canterbury Regional Pest Management Plan, 2018 – 2038 (ECan, 2018).

3.4.4 European rabbits

One Philproof bait station should be installed within the relocation area along a fenceline or against a mature tree. Pindone pellets are recommended as this type of poison-bait does not require a pre-feeding period. Stations should be baited with Pindone for two weeks before being emptied and rebaited for another two weeks. Rabbit control should occur two months before the commencement of enhancement planting in the area to ensure rabbit populations are low and will not damage native plantings.

3.5 Monitoring

3.5.1 Lizards

Upon completion of habitat enhancement activities, the relocation site will provide suitable habitats for native lizards. The site will need to be monitored to determine if the translocated population of lizards becomes established. Lizard monitoring will be conducted between October to April (inclusive) and will involve the placement of Artificial Cover Objects (ACOs) at 10 m intervals within and around suitable lizard habitat at the site. Monitoring will commence during the first trapping season following lizard salvage and relocation activities under adequate weather conditions (low wind, warm and sunny). A Translocation Monitoring report will be prepared for each monitoring event as per Section 7.3 of the project LMP (Davidge et al., 2025).

3.5.1 Enhancement Plantings

Monitoring of the enhancement plantings will be required for a minimum of two years. Monitoring periods should coincide with growing seasons during spring and summer, during which time pest plants may become established in the area that will require removal. Where possible, photographs should be taken at the same location during each monitoring period to provide a time-lapse of plant growth, necessary to determine planting success in the long term. Additionally, notes should be made detailing areas with large gaps (more than 1 m^2) and any native plants that have died (refer to Section 3.1.3 for more details). Results from enhancement planting monitoring should be included in the Translocation Monitoring plan outlined in Section 7.3 of the project LMP (Davidge et al., 2025).

4.0 References

Adams, L. (2019). *Key principles for lizard salvage and transfer in New Zealand* (pp. 1–23). Department of Conservation. https://www.doc.govt.nz/globalassets/documents/about-doc/concessions-and-permits/wildlife-research-permits/lizard-salvage-and-transfer-nz.pdf

CCC. (2005). *Christchurch City & Lowland Canterbury Streamside Planting*. Christchurch City Council.

Davidge, L., Papworth, N., & Arthur, J. (2025). *Lizard Management Plan—104 Ryans Road* (Technical Report C052850002R001). Pattle Delamore Partners.

DOC. (2019). *Practical guide to trapping mustelids, rats and possums*. Department of Conservation. https://www.doc.govt.nz/globalassets/documents/conservation/threats-and-impacts/pf2050/trapping-guide-pf2050.pdf

ECan. (2018). *Canterbury Regional Pest Management Plan, 2018-2038*. Environment Canterbury Regional Council. https://www.ecan.govt.nz/document/download?uri=3420918

Haami, B. (2012). Kiore – Pacific rats. *Te Ara – the Encyclopedia of New Zealand*. https://teara.govt.nz/en/kiore-pacific-rats

Herbert, S., Knox, C., Clarke, D., & Bell, T. (2023). Use of constructed rock piles by lizards in a grassland habitat in Otago, New Zealand. *New Zealand Journal of Ecology*, *47*(1), 1–7. https://doi.org/10.20417/nzjecol.47.3543

5.0 Limitations

This memorandum has been prepared by Pattle Delamore Partners Limited (PDP) on the basis of information provided by Carter Group Limited. PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the memorandum. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

This memorandum has been prepared by PDP on the specific instructions of Carter Group Limited for the limited purposes described in the memorandum. PDP accepts no liability if the memorandum is used for a different purpose or if it is used or relied on by any other person. Any such use or reliance will be solely at their own risk.

Prepared by

[redacted]

Lachie Davidge

Ecologist – Ecology

Reviewed and approved by

[redacted]

Jarred Arthur

Technical Director - Ecology

Appendix A: Proposed Landscape Concept Plan

A. PROPOSED LANDSCAPE CONCEPT PLAN (1:4,000 @ A3)

PROPOSAL - PROPOSED LANDSCAPE CONCEPT PLAN

LEGEND

- Site Boundary
- A — Lizard planting area (1000m²)
- Habitat rock / log piles
- Lizard exclusion fence

*see plant palette page for plant species

LIZARD HABITAT AGGREGATE PILE

LIZARD HABITAT WOOD PILE

LIZARD EXCLUSION FENCE

LIZARD HABITAT CONCEPT PLAN (1:500 @ A3)

PROPOSAL - LIZARD HABITAT CONCEPT PLAN

STREET PLANT PALETTE

SPECIMEN TREES

Upright Red Maple *(Acer 'bowhall')*

Snakebark Maple *(Acer davidii)*

Scarlet Oak *(Quercus coccinea)*

STORMWATER MANAGEMENT AREAS

SPECIMEN TREES

Mānatu/Lowland Ribbonwood *(Plagianthus regius)*

Tōtara *(Podocarpus totara)*

Kōwhai *(Sophora microphylla)*

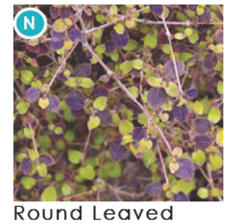
Kanuka ***(Kunzea ericoides)***

LIZARD HABITAT

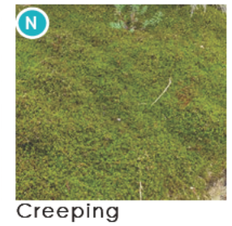
Mingimingi (Coprosma propinqua)

Silver tussock (Poa cita)

Scrub pōhuehue (Muehlenbeckia astonii)



Round Leaved Coprosma (Coprosma rotundifolia)



Creeping pōhuehue (Muehlenbeckia axillaris)

SHRUBS / GROUNDCOVERS

Hunangamoho/ wind grass *(Anemanthele lessoniana)*

Kakaha/bush flax *(Astelia fragrans)*

Mikimiki/ mingimingi *(Coprosma propinqua)*

Mānuka/tea tree *(Leptospermum scoparium)*

Purei/swamp sedge *(Carex secta)*

Tarata/lemon-wood *(Pittosporum eugenioides)*

Kōhūhū/black matipo *(Pittosporum tenuifolium)*

Koromiko *(Veronica salicifolia)*

Kāpuka/broadleaf *(Griselinia littoralis)*

Appendix B: Key principles for lizard salvage and transfer in New Zealand

Principle 6 - Receiving sites and their carrying capacity must be suitable in the long term

1. The site must be ecologically appropriate and have long-term security
    a. It must be suitable through time for the lizard species being salvaged.
    b. The numbers and patterns of habitat use of lizard species already present at the receiving site must be understood (e.g. there must be an existing population of the species being salvaged adjacent to the receiving site, or enough assurance that there will be adequate animals salvaged to establish a genetically viable population).
    c. It must be an appropriate distance from the salvage site to ensure lizards cannot move back into harm's way[5] (lizard exclusion fences in combination with traps can be used to keep lizards out of development areas), but as close as possible to ensure lizards are moved to site(s) that very closely resemble those that they have come from in terms of microhabitat and climate.
    d. Post-release monitoring must be achievable if appropriate (see Principle 7 below).
    e. The location must be within the species' natural geographic range. It is unlikely that DOC would support lizards being transferred to areas outside their known or likely historic geographic ranges.
    f. There must be no mixing of genetically structured populations.
2. The habitat at the site must be suitable for the salvaged species.
    a. It should be predominantly indigenous vegetation that is sufficiently large and continuous to support both the translocated lizards and the eventual established population over all the species' life history stages.
    b. It must contain sufficient resources (food, cover, retreats) for both the salvaged lizards and the eventual established population, be buffered from climatic extremes (drought, cold) and not located in areas that are prone to flooding or coastal erosion.
    c. There must be sufficient resources for both resident and translocated lizards or 'improved' for lizards to ensure resources are available.
    d. Management must improve habitat for lizards over timeframes that are ecologically relevant.
3. The site must provide protection from predators.
    a. Habitat at the site must be secure from predators or effective pest control must be in place to allow the salvaged lizards to establish a population.
    b. Where predators have been eradicated, there have to be appropriate biosecurity procedures to stop them reinvading.
4. The site must be protected from future human disturbance.
    a. Land tenure at the site must ensure long-term protection from disturbance."

Appendix C: Summary of the Enhancement Planting List

Appendix C: Summary of the Enhancement Planting List			
Common Name	**Species**	**Spacing (m)[2]**	**No. of Plants (approx.)**
Creeping pōhuehue	*Muehlenbeckia axillaris*	0.6	556
Silver tussock	*Poa cita*	0.7	408
Scrub pōhuehue	*Muehlenbeckia astonii*	1.2	139
Mingimingi	*Coprosma propinqua*	1.5	89
Round-leaved coprosma	*Coprosma rotundifolia*	2	50

[2] Spacing is between individuals of the same species and distances between species are approximate guidelines.

Appendix D: Timeline of lizard habitat enhancement activities

Appendix D: Timeline of lizard habitat enhancement activities			
Year	**Activity**	**Timeframe**	**Organisation Responsible**
1	Allow grass to grow	Ongoing	N/A
	Planting preparation	One week prior to enhancement planting	Qualified subcontractor
	Enhancement planting and eco-pile installation	January 2026	Qualified subcontractor
	Pest control	Quarterly starting January & February 2026 (for a period of four weeks)	CGL, qualified subcontractor
	Pre-clearance trap acclimation	February 2026 (four weeks prior to lizard salvage and relocation)	Qualified herpetologist/ecologist
	Installation of lizard exclusion fence	One week prior to lizard salvage and relocation	Qualified subcontractor
	Lizard salvage and relocation	March 2026	Qualified herpetologist/ecologist
2	Pest control	Quarterly (for a period of four weeks)	CGL, qualified subcontractor
	Translocation monitoring	Once between October 2027 to April 2028 inclusive.	Qualified herpetologist/ecologist

Appendix D: Example of an Amphibian and Reptile Distribution Scheme Card

ARDS CARD

NEW ZEALAND AMPHIBIAN/REPTILE DISTRIBUTION SCHEME

Herpetofauna Administrator, RD&I, Department of Conservation, P.O. Box 10420, Wellington.

Card No:

Observer: Initials Surname

Date:

Alt (m):

Locality Name:

Address:

GPS Easting Northing

Series Map No. Easting Northing

Affiliation:

Area Office: Conservancy: Ecol. District:

Species name	No.	Time	Habitat	Weather
e.g. *Hoplodactylus maculatus*	6	18:00	16, D, E	6,2,1

Voucher specimen(s) Yes/No Specify:

Photograph(s) Yes/No

Extra notes on reverse side Yes/No

Notes:

Identified by:

Authority used:

Weather

Light
1 Fine/Sunny
2 Part Cloudy
3 Overcast
4 Showers
5 Rain
6 Night
7 0-½ Moonlit
8 ½-1 Moonlit

Temperature
1 Hot
2 Warm
3 Moderate
4 Cool
5 Cold

Wind
1 Calm
2 Light breeze
3 Mod breeze
4 Gusty
5 Strong winds

Major Habitat Types

1 Beech Forest
2 Podocarp forest
3 Broadleaf forest
4 Exotic forest
5 Scrub
6 Sub-alpine
7 Alpine
8 Undeveloped tussock land
9 Developed farmland
10 River terrace
11 Fresh water
12 Wet land
13 Coastal
14 Scree
15 Bare rocks
16 Beach
17 Urban
18
19
20

Micro habitats

A Foliage
B Trunk
C Branches
D Under stones
E Under wood
F Open ground
G Crevices
H

ARDS CARD

NEW ZEALAND AMPHIBIAN/REPTILE DISTRIBUTION SCHEME

Herpetofauna Administrator, RD&I, Department of Conservation, P.O. Box 10420, Wellington.

Card No:

Observer: Initials Surname

Date:

Alt (m):

Locality Name:

Address:

GPS Easting Northing

Series Map No. Easting Northing

Affiliation:

Area Office: Conservancy: Ecol. District:

Species name	No.	Time	Habitat	Weather
e.g. *Hoplodactylus maculatus*	6	18:00	16, D, E	6,2,1

Voucher specimen(s) Yes/No Specify:

Photograph(s) Yes/No

Extra notes on reverse side Yes/No

Weather

Light
1 Fine/Sunny
2 Part Cloudy
3 Overcast
4 Showers
5 Rain
6 Night
7 0-½ Moonlit
8 ½-1 Moonlit

Temperature
1 Hot
2 Warm
3 Moderate
4 Cool
5 Cold

Wind
1 Calm
2 Light breeze
3 Mod breeze
4 Gusty
5 Strong winds

Major Habitat Types

1 Beech Forest
2 Podocarp forest
3 Broadleaf forest
4 Exotic forest
5 Scrub
6 Sub-alpine
7 Alpine
8 Undeveloped tussock land
9 Developed farmland
10 River terrace
11 Fresh water
12 Wet land
13 Coastal
14 Scree
15 Bare rocks
16 Beach
17 Urban
18
19
20

Micro habitats

A Foliage
B Trunk
C Branches
D Under stones
E Under wood
F Open ground
G Crevices
H