

Appendix A

Terrestrial Vegetation Maps



Key Vegetation & EPAN

Beachlands South Fast Track

Beachlands South LP

Legend

-  Site - Field Verified
-  Site - Non-field Verified
-  Consented earthworks (Stg 1)
-  EPAN boundaries

Key vegetation types

-  Exotic forest/treeland (EF)
-  Exotic scrub (ES)
-  Kanuka-dominant scrub (VS2)
-  Native planting (PL)
-  Pohutukawa treeland (CL1)

SOURCES

Nearmaps 2025 aerial

DISCLAIMER:
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This map/plan is illustrative only and all
information should be independently
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SCALE **1:9,500** @ A4

PROJECT NO. 10055

DRAWN BY: B.P

DATE: 22 June 2026

0 50 100 m





Key Vegetation & EPAN

Northwestern site area

Beachlands South LP

Legend

-  Site - Field Verified
-  Consented earthworks (Stg 1)
-  EPAN boundaries

Key vegetation types

-  Exotic forest/treeland (EF)
-  Exotic scrub (ES)
-  Kanuka-dominant scrub (VS2)
-  Pohutukawa treeland (CL1)

SOURCES

Nearmaps 2025 aerial

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DATE: 22 June 2026

0 50 100 m



Key Vegetation & EPAN

Southwestern site area

Beachlands South LP

Legend

-  Site - Field Verified
-  Consented earthworks (Stg 1)
-  EPAN boundaries

Key vegetation types

-  Exotic forest/treeland (EF)
-  Exotic scrub (ES)
-  Kanuka-dominant scrub (VS2)
-  Pohutukawa treeland (CL1)

SOURCES

Nearmaps 2025 aerial

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DATE: 22 June 2026

0 50 100 m





Key Vegetation & EPAN

Eastern site area

Beachlands South LP

Legend

-  Site - Field Verified
-  Site - Non-field Verified
-  Consented earthworks (Stg 1)
-  EPAN boundaries

Key vegetation types

-  Exotic forest/treeland (EF)
-  Exotic scrub (ES)
-  Kanuka-dominant scrub (VS2)
-  Native planting (PL)

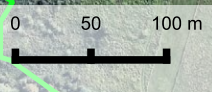
SOURCES

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Appendix B

Lizard and Bat Survey Memorandum (Bioresearches 2026)

TO: Beachlands South Limited Partnership
 COPY TO: Graeme Harvey; Khai Azizi
 FROM: Levi Murdoch-Tighe; Charlotte Garrett

Date: 25 May 2026
 Job No: 69071

LIZARD SURVEY: 110 JACK LACHLAN DRIVE, BEACHLANDS SOUTH

Bioresearches was engaged by Beachlands South Limited Partnership to undertake a lizard survey of potential habitats within the proposed project extent at 110 Jack Lachlan Drive, Beachlands. We note that the FUZ land (620, 712, 758 and 770 Whitford Maraetai Road) has not been surveyed. Both native skinks and geckos have been recorded within 5 km of the project extent, and potential habitats (indigenous scrub and ground cover) for each of these lizard fauna were observed onsite, therefore survey tools to target each habitat type were utilised.

The project area includes sections of maintained golf course, a series of Ecological Protected Area Networks (EPANs) and scattered areas of regenerating (mostly exotic grasses) vegetation. The EPANs have previously been identified as having higher ecological value and are understood to have been mapped for protection (Figure 1).

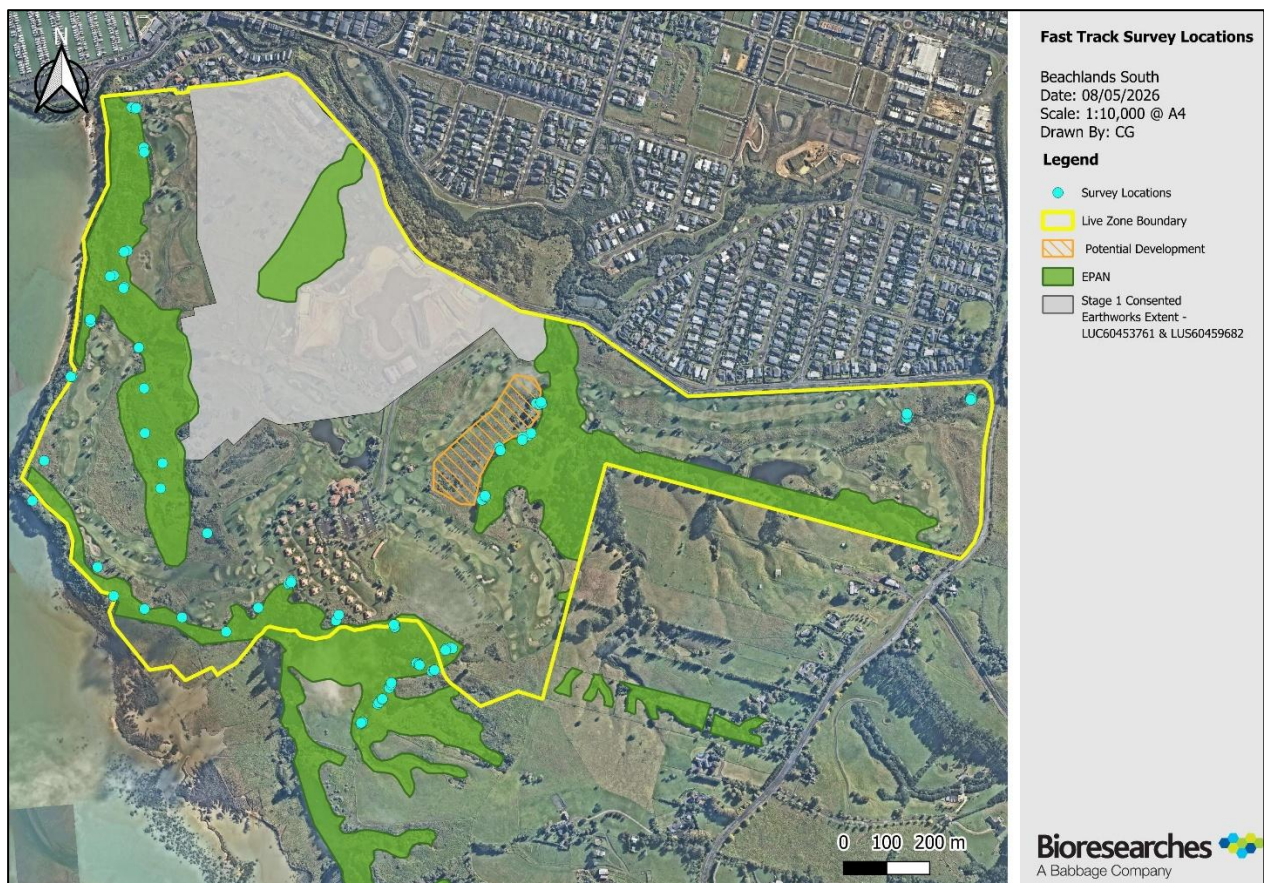


Figure 1: Map showing location of the EPAN, potential development area and Fast Track extent at 110 Jack Lachlan Drive, Beachlands in 2026.



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Bioresearches
 Level 4, 68 Beach Road, Auckland 1010
 PO Box 2027, Shortland Street,
 Auckland 1140, New Zealand
 T 09 379 9980 F 09 377 1170
 E admin@babbage.co.nz www.bioresearches.co.nz

The purpose of the lizard survey was to determine species presence, coarse scale abundance and spatial distribution where potential habitats were identified.

Artificial Retreat Methodology and Results

An Artificial Retreat survey was undertaken over March-April 2026, in accordance with Lettink (2012¹). Refer to Photo 1; Figure 2 for survey coverage.

- Survey stations were installed four weeks prior (February 2026) to survey period to allow traps to acclimatise.
- Survey setup consisted of a grid of 37 stations, with each station consisting of four artificial retreats (ARs).
- Locations of stations and timing of survey were recorded.
- Survey provided for five checks during fine, settled weather conditions.
- Opportunistic hand-searches throughout areas of suitable habitat (leaf litter, logs, rocks and debris) were undertaken concurrently with AR checks (Lettink and Hare, 2016²).

Results: No native lizards were observed from 740 AR inspections.

¹ Lettink, M., & Hare, K. M. (2016). Sampling Techniques for New Zealand Lizards. In D. G. Chapple (Ed.), *New Zealand Lizards* (pp. 269–291). Springer International Publishing. https://doi.org/10.1007/978-3-319-41674-8_10

² Lettink, M. and Hare, K.M., (2016). Sampling techniques for New Zealand lizards. In *New Zealand Lizards* (pp. 269-291). Springer, Cham.



Photo 1: ACOs covered a variety of suitable lizard habitat types.



Figure 2: Map showing location of lizard survey stations at the site.



Nocturnal Spotlight Searches

Nocturnal spotlight searches were undertaken along the edges of suitable potential gecko habitat (Photo 2) with the aid of a powerful headlamp (e.g. LED Lenser XEO 19-R) and binoculars (e.g. 10x42 Bushnell Legend Ultra HD). Nocturnal searching is a recognised and effective method for the detection of semi-arboreal/ arboreal geckos (Whitaker, 1994; Lettink & Hare, 2016). The location of night spotting search routes is identified in Figure 3.

Nocturnal searches were undertaken during suitable weather conditions (i.e., temperatures $\geq 16^{\circ}\text{C}$, precipitation-free or light precipitation [i.e., light drizzle], wind speed $< 15\text{ km/hr}$) to ensure lizard detection probability was maximised.

A search effort of eight person hours over two nights was undertaken on April 2nd and April 8th 2026.

Results

No geckos, or signs (e.g. sloughed skins), were detected during nocturnal spotlight searches. Rats and possums were frequently encountered within the canopy.

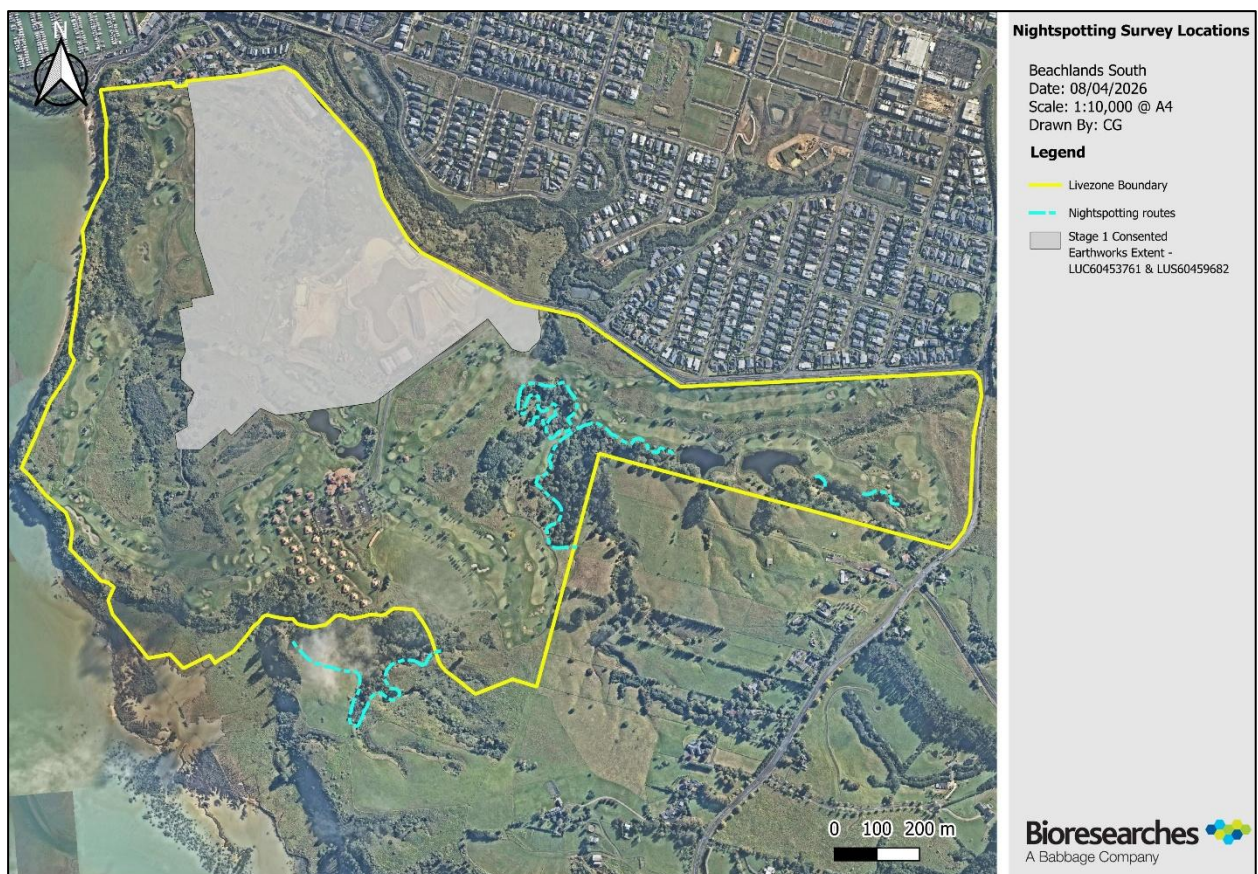


Figure 3: Map showing location of night spotting routes.



Photo 2: Nocturnal spotlighting of canopy trees for geckos throughout suitable habitat types

Summary

No native lizards were detected from targeted surveys over March-April 2026.

Further to this survey, additional trapping and machine-assisted destructive searches have been undertaken of rough exotic grasses throughout the adjacent, contiguous area of consented earthworks area (Stage 1 extent, Figures 1 & 3) over early 2026 (refer Bioresearches 2026 a & b). No lizards were recovered from those investigations, and these combined results potentially indicate that low numbers, if any at all, of native lizards may be present within the Live Zone Boundary (Figures 1 & 2) where similar vegetation cover occurs.

The memorandums pertaining to the consented Stage 1 vegetation clearance (Bioresearches 2026a,b,c) have been attached to this memorandum.

Kind regards,

Levi Murdoch-Tighe; Charlotte Garrett
Ecologists

Reviewed: Chris Wedding

Principal Ecologist

Bioresearches

Bioresearches 2026a. Beachlands South Stage 1: Terrestrial Ecology Implementation Memorandum 1. (C. Garrett, 13 March 2026).

Bioresearches 2026b. Beachlands South Stage 1: Terrestrial Ecology Implementation Memorandum 1. (C. Garrett, 22 March 2026).

Bioresearches 2026c. Beachlands South Stage 1: Pest Animal Management Memorandum. (B. Outhwaite, 30 January 2026).

TO: Beachlands South Limited Partnership
COPY TO: Khai Azizi; Chris Maday
FROM: Charlotte Garrett

Date: 13 March 2026
Job No: 68928

BEACHLANDS SOUTH STAGE 1: TERRESTRIAL ECOLOGY IMPLEMENTATION MEMORANDUM 1

In accordance with consent conditions (LUC60453761) relating to terrestrial ecology, Bioresearches has implemented the necessary requirements for lizard, bird and bat management on-site.

The purpose of this memorandum is to detail that relevant consent conditions have been implemented, in general accordance with the provided fauna management plans (Viridis, 2025). Some additional aspects of lizard management activities were undertaken prior to works commencing (habitat identification, relocation site suitability, and post-release management) as these were not identified in the fauna management plan. These aspects are required to align the proposed management with our Wildlife Authority (98006-FAU), and address key principles for lizard salvage and transfer (DOC Lizard Technical Advisory Group) - refer Bioresearches (2026) Memorandum.

Lizard, bird and bat management works are not yet complete, and are proposed to occur in stages across the 2025-2026 and 2026-2027 summer seasons. Specific fauna management measures have been discussed in further detail below.

All bat management has been undertaken by a suitably qualified ecologist, certified to the Department of Conservation Bat Handling Competencies for 3.1 (high-risk ABM tree roost surveys); 3.3 (high-risk roost finding) and 1.2.2 (harp extraction). Lizard management has been supervised by a senior herpetologist (20 years' experience).

Bird Management

Nest checks have been undertaken the morning of (i.e., within 24 hours of) tree felling procedures. No native bird nests have been found within felled trees to date.

Bat Management

Prior to tree felling in any section, a habitat assessment was undertaken by certified ecologists to identify high-risk bat trees. High-risk trees were identified throughout surveyed areas, generally being exotic palms. Prior to vegetation clearance, high-risk trees were surveyed for a minimum of two nights prior to felling, in clear weather conditions by the certified ecologist (3.1 DOC, 2023). No bats have been detected during data analysis, and tree felling was completed the same day. Cavities were inspected post-felling and no signs of roosting were detected.





Photo 1: Example of an identified high-risk tree

Lizard Management

Pre-Works Survey

Bioresearches undertook a site visit in December 2025 to identify the presence of and types of lizard habitat within the Site. Following this site visit, and as part of a broad-scale survey and trapping programme, approximately 100 detection and trapping devices (80 ACOs and 20 funnel traps) were installed in December (2025) throughout areas proposed for clearance this season and left to acclimatise. A map showing the location of identified potential lizard habitat, as well as the locations of traps within vegetation proposed for clearance this season, is provided in Figure 1. Traps were activated and checked throughout the first week of February. No lizards were found throughout this process.

Areas not subjected to trapping are still required to be investigated via manual searches and machine-assisted searches.



Photo 2: Examples of habitat surveyed for lizards



Photo 3: Further examples of surveyed lizard habitat

Vegetation Clearance

Vegetation clearance began following trap checks in February 2026. Throughout areas of suitable habitat (such as logs, manmade debris, phoenix palm debris and leaf litter), manual searches were first undertaken prior to machine assisted clearance. Following hand searches, destructive searches were undertaken with assistance from a digger fitted with toothed bucket. These searches enabled dense ground covers, such as those potential habitats that are not otherwise effectively searchable by hand (e.g. kikuyu grass, pampas), to be lifted from the ground. Hand searches were also undertaken post-machine clearance throughout remaining habitat and removed vegetation. No native lizards have been detected thus far.

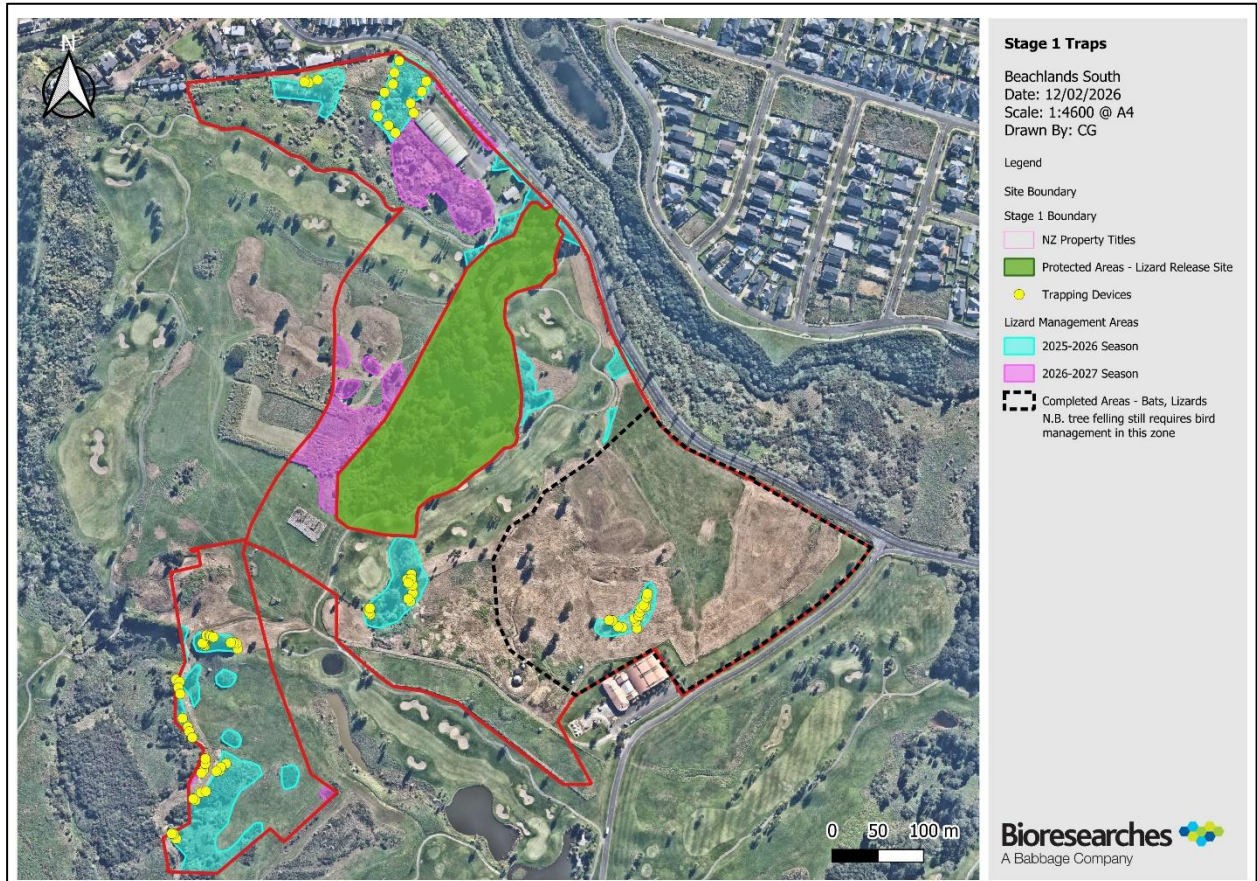


Figure 1: Map showing location of identified lizard habitat within the Site, and location of lizard survey equipment throughout vegetation proposed for clearance this summer. The dotted line indicates the approximate area (as of February 13th, 2026) where vegetation clearance, in accordance with lizard, bird and bat management has occurred.

Conclusion

Lizard, bird and bat management have not recorded any native lizards, nesting native birds or roosting bats to date. Precautionary species management is required to continue throughout the Site, as per Conditions of Consent. Bat habitat assessments are required prior to the commencement of each tree felling stage to identify high-risk trees and implement tree-felling protocols. A completion memorandum is required at the end of works, but may be provided at the end of each stage of works, to report results and findings.

Kind regards,



Charlotte Garrett
Landscape Ecologist

Bioresearches

TO: Beachlands South Limited Partnership
COPY TO: Khai Azizi; Chris Maday
FROM: Charlotte Garrett

Date: 22 March 2026
Job No: 68928

BEACHLANDS SOUTH STAGE 1: TERRESTRIAL ECOLOGY COMPLETION MEMORANDUM 2

This memorandum confirms that terrestrial ecology works have now been completed within the identified areas (Figure 1) in accordance with the methodologies outlined in the Fauna Management Plan (Viridis, 2025). This memorandum should be read in conjunction with the Terrestrial Ecology Implementation Memorandum 1 (Bioresearches, 2026), which identifies the pre-works requirements and full details of ecology methodologies.

Fauna management, including nesting bird surveys (until end of February), tree felling protocols for native bats, and search and salvage for native lizards has been undertaken throughout the areas identified in Figure 1. During works, no native lizards, nesting birds, or native bats were detected across their respective search methodologies. High-risk bat trees were identified, and tree felling protocols, including acoustic survey and cavity inspections, were undertaken by a suitably certified ecologist (DOC 2023 level 3.1). High-risk trees were felled immediately following acoustic survey analysis (i.e., the same day).

The areas in Figure 1 are now considered complete from a terrestrial ecology perspective within the identified extents. Freshwater ecology works will be addressed separately to this memorandum.



Photo 1: Machine-assisted searches utilising toothed bucket through grass habitat (left); Manmade debris which was first searched by hand (right) during lizard search and salvage



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Level 4, 68 Beach Road, Auckland 1010
PO Box 2027, Shortland Street,
Auckland 1140, New Zealand
T 09 379 9980 F 09 377 1170
E admin@babbage.co.nz www.bioresearches.co.nz



Figure 1: Map showing location (as of March 12th, 2026) where vegetation clearance, in accordance with lizard, bird and bat management requirements, has occurred.

Kind regards,

Charlotte Garrett

Charlotte Garrett
Landscape Ecologist

Bioresearches

TO: Beachlands South Limited Partnership
COPY TO: Khai Azizi
FROM: Blair Outhwaite

Date: 30 January 2026
Job No: 68957

PEST ANIMAL MANAGEMENT

Dear Khai,

Should more than 20 native lizards be successfully salvaged at Beachlands South, pest animal management is a requirement of the Lizard Management Plan being implemented and the Wildlife Act Authority under which the work is being undertaken. Pest animal management aims to increase carrying capacity of the release site and protect released skinks as they 'settle in'.

Rats and mice are likely to pose the greatest threat to native skinks in the release area. Pest animal control will focus on reducing rat and mouse populations within this area. Eradication of rats and mice is not expected as there will likely be ongoing re-invasion from adjacent properties.

Control Methodology

Rats and mice control is to involve the installation and maintenance of a bait station network (Figure 1) for five years. Bait stations around the perimeter should be spaced 25m apart. Bait stations internally should be installed in a grid of 50m by 50m. Bait stations should be installed along watercourses, bush edges, or other linear features where rats and mice are likely to traverse. Based on the above requirements, this would require c. 112 bait stations.

The bait stations should be serviced in a pulse cycle, set during February, May, August, and November. The bait stations should be serviced every 2-3 nights for two weeks and should be emptied between pulses.



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Bioresearches
Level 4, 68 Beach Road, Auckland 1010
PO Box 2027, Shortland Street,
Auckland 1140, New Zealand
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E admin@babbage.co.nz www.bioresearches.co.nz



Figure 1: Example pest animal management grid at the lizard release area for Beachlands South.



Blair Outhwaite
Senior Ecologist
Bioresearches

Attachments: Applicability and limitations

APPLICABILITY AND LIMITATIONS

Restrictions of Intended Purpose

This report has been prepared solely for the benefit of [Comments] as our client with respect to the brief. The reliance by other parties on the information or opinions contained in the report shall, without our prior review and agreement in writing, be at such party's sole risk.

Legal Interpretation

Opinions and judgements expressed herein are based on our understanding and interpretation of current regulatory standards, and should not be construed as legal opinions. Where opinions or judgements are to be relied on they should be independently verified with appropriate legal advice.

Maps and Images

All maps, plans, and figures included in this report are indicative only and are not to be used or interpreted as engineering drafts. Do not scale any of the maps, plans or figures in this report. Any information shown here on maps, plans and figures should be independently verified on site before taking any action. Sources for map and plan compositions include LINZ Data and Map Services and local council GIS services. For further details regarding any maps, plans or figures in this report, please contact Babbage Consultants Limited.

Appendix C

Avifauna Survey Data

Table C1. Terrestrial avifauna that have been observed within the site and adjacent environments on a permanent or intermittent basis (records from T&T 2022a-c, and Viridis surveys undertaken in April 2026).

Common name	Species name	NZTCS threat status
Australian magpie	<i>Gymnorhina tibicen</i>	Introduced
Banded dotterel	<i>Charadrius bicinctus bicinctus</i>	At Risk – Declining
Banded rail	<i>Gallirallus philippensis assimilis</i>	At Risk – Declining
Bar-tailed godwit	<i>Limosa lapponica baueri</i>	At Risk – Declining
Blackbird	<i>Turdus merula</i>	Introduced
Caspian tern	<i>Hydroprogne caspia</i>	Threatened – Nationally Vulnerable
Chaffinch	<i>Fringilla coelebs</i>	Introduced
Common pheasant	<i>Phasianus colchicus</i>	Introduced
Eastern rosella	<i>Platycercus eximius</i>	Introduced
Goldfinch	<i>Carduelis carduelis</i>	Introduced
Greenfinch	<i>Carduelis chloris</i>	Introduced
Grey warbler	<i>Gerygone igata</i>	Not Threatened
House sparrow	<i>Passer domesticus</i>	Introduced
Kererū	<i>Hemiphaga novaeseelandiae</i>	Not Threatened
Lesser knot	<i>Calidris canutus</i>	At Risk – Declining
Little shag	<i>Phalacrocorax melanoleucos brevirostris</i>	At Risk – Relict
Long-tailed cuckoo	<i>Eudynamys taitensis</i>	Threatened - Nationally Vulnerable
Mallard duck	<i>Anas platyrhynchos</i>	Introduced
Myna	<i>Acridotheres tristis</i>	Introduced
New Zealand dotterel	<i>Charadrius obscurus</i>	Threatened – Nationally Increasing
New Zealand kingfisher	<i>Todiramphus sanctus</i>	Not Threatened
New Zealand pipit	<i>Anthus novaeseelandiae</i>	At Risk - Declining
North Island fantail	<i>Rhipidura fuliginosa</i>	Not Threatened
Paradise shelduck	<i>Tadorna variegata</i>	Not Threatened
Pied stilt	<i>Himantopus himantopus</i>	Not Threatened
Pūkeko	<i>Porphyrio melanotus</i>	Not Threatened
Royal spoonbill	<i>Platalea regia</i>	At Risk – Naturally Uncommon

Common name	Species name	NZTCS threat status
Ruru/morepork	<i>Ninox novaeseelandiae</i>	Not Threatened
Shining cuckoo	<i>Chrysococcyx lucidus</i>	Not Threatened
Silvereye	<i>Zosterops lateralis</i>	Not Threatened
Skylark	<i>Alauda arvensis</i>	Introduced
Song thrush	<i>Turdus philomelos</i>	Introduced
South Island pied oystercatcher	<i>Haematopus finschi</i>	At Risk - Declining
Southern black-backed gull	<i>Larus dominicanus</i>	Not Threatened
Spotted dove	<i>Streptopelia chinensis</i>	Introduced
Spur-winged plover	<i>Vanellus miles novaehollandiae</i>	Not Threatened
Starling	<i>Sturnus vulgaris</i>	Introduced
Swamp harrier	<i>Circus approximans</i>	Not Threatened
Tūī	<i>Prothemadera novaeseelandiae</i>	Not Threatened
Variable oystercatcher	<i>Haematopus unicolor</i>	At Risk – Recovering
Welcome swallow	<i>Hirundo neoxena</i>	Not Threatened
White-faced heron	<i>Egretta novaehollandiae</i>	Not Threatened
Yellowhammer	<i>Emberiza citrinella</i>	Introduced