

# Memorandum

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Attention: John & Andrea Sturgess

Company: Lucklaw Farm

Date: 11<sup>th</sup> December 2023

From: Matt Turner

Message Ref: Puheke Beach and Lucklaw Farm Lizard Survey and Values

Project No: BM220341

## Background

John and Andrea Sturgess own Lucklaw Farm, located between Rangiputa township and Puheke Beach on Karikari Peninsula. John and Andrea Sturgess engaged Boffa Miskell Limited (BML) to undertake ecological surveys to better understand the ecological values within their property and the adjoining Puheke Beach (Figure 1). This memorandum provides an overview of the herpetological values at Puheke Beach identified during field surveys and a description of potential lizard species present within Lucklaw Farm.



Figure 1. Lucklaw farm situated between Puheke Beach and Lake Rotokawau

## Desktop Survey

The Department of Conservation Bioweb Herpetofauna Database records within 30 km were reviewed to inform our assessment of the potential lizard fauna within and surrounding Lucklaw Farm (Map 1).

In total, eight species of lizards have been recorded from within the wider area, including six skinks and two gecko species (Table 1). Previous lizard surveys on Puheke Beach and Lucklaw Farm have identified three species of terrestrial skink, including the indigenous shore skink (*Oligosoma smithi*) and moko skink (*O. moco*), and the invasive plague/rainbow skink (*Lampropholis delicata*) (Boffa Miskell 2022, Wildlands 2023). Two skinks, copper skink (*O. aeneum*) and egg-laying skink (*O. suteri*; Figure 2) and Northland green gecko (*Naultinus greyii*) and Maitapia gecko (*Dactylocnemis* “Matapai Island”)<sup>1</sup> have been recorded on the wider Karikari Peninsula. Ornate skinks (*O. ornatum*) are likely to also be present on the Peninsula.

We consider robust skinks (*O. alani*) is very unlikely to be present at Lucklaw farm. Robust skinks were once widely distributed across New Zealand, but their large size made them particularly susceptible to mammalian predation, and they are currently restricted only to predator-free offshore islands.

Table 1. Indigenous lizard species potentially present within 30 km of Lucklaw Farm (source DOC Bioweb herpetofauna database).

Species	Common Name	Threat Classification	Nearest Record	Preferred Habitats
<i>Oligosoma smithi</i>	Shore skink	At Risk - Declining	On site (Boffa Miskell 2023)	Terrestrial. Shelly or boulder beaches, duneland and littoral zone
<i>Oligosoma moco</i>	Moko skink	At Risk - Relict	On site (Wildlands 2023)	Terrestrial. Native forest, flaxland, scrubland, boulder beaches, grassland
<i>Oligosoma aeneum</i>	Copper skink	At Risk - Declining	12.3 km, Waipapa Beach	Terrestrial. Forest, scrubland, beaches, grassland
<i>Oligosoma ornatum</i>	Ornate skink	At Risk - Declining	10.8 km Moturoa Islands	Terrestrial. Forest, scrubland, beaches, grassland
<i>Oligosoma suteri</i>	Egg-laying skink	At Risk - Declining	12.6 km, Maitai Bay Scenic Reserve	Terrestrial. Shelly or boulder beaches, duneland and littoral zone
<i>Oligosoma alani</i>	Robust skink	At Risk – Recovering	10.8 km Moturoa Islands	Terrestrial. Forest, scrubland
<i>Naultinus greyii</i>	Northland green gecko	At Risk - Declining	6.7 km, Kaimaumu	Arboreal. Coastal/lowland forest and shrubland
<i>Dactylocnemis</i> “Matapai Island”	Matapia gecko	At Risk - Declining	7.1 km Karikari Peninsula	Arboreal. Coastal/lowland forest and shrubland, clay banks and rocky habitat

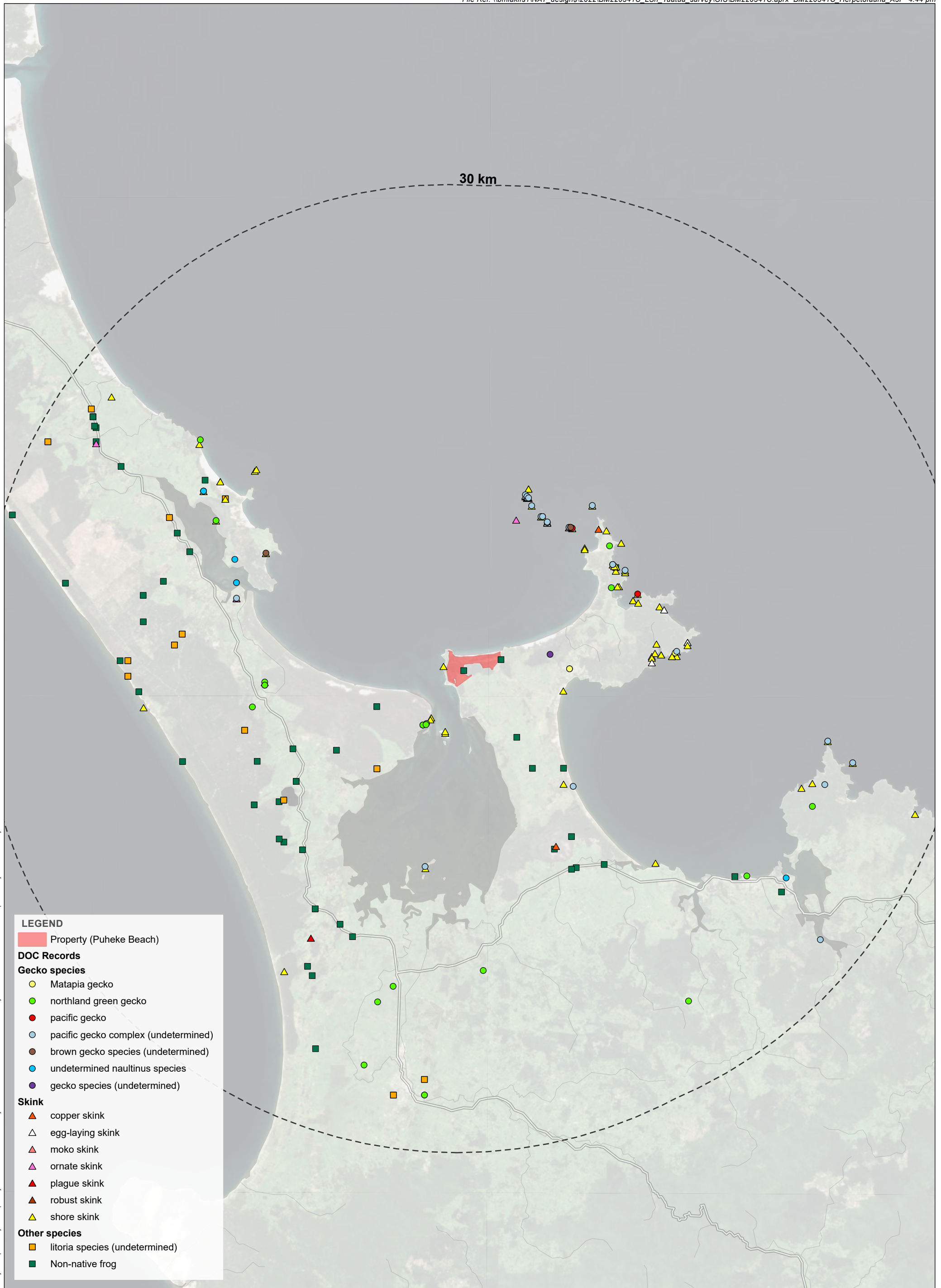
## Lizard Surveys (2023)

Day and night-time lizard surveys were conducted to determine presence of species within Puheke Beach and the adjacent Lucklaw Farm between 5 and 7 December 2023. The lizard surveys used passive techniques, consisting of diurnal and nocturnal visual encounter surveys (VES) and manual searching. Passive survey techniques do not require a Wildlife Act Authority (WAA) issued by the Department of Conservation.

Nocturnal VES (spotlighting) for Northland green geckos and Matapia geckos were conducted across two nights (5 and 6 December 2023) along kānuka scrub/forest margins within Lucklaw Farm. Surveys consisted

<sup>1</sup> Both Northland green gecko and Matapia geckos have been identified on the Karikari peninsula during lizard surveys in 2016

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**LEGEND**

- Property (Puheke Beach)
- DOC Records**
- Gecko species**
- Matapia gecko
- northland green gecko
- pacific gecko
- pacific gecko complex (undetermined)
- brown gecko species (undetermined)
- undetermined nautinus species
- gecko species (undetermined)
- Skink**
- copper skink
- egg-laying skink
- moko skink
- ornate skink
- plague skink
- robust skink
- shore skink
- Other species**
- litoria species (undetermined)
- Non-native frog



of slowly scanning forest edges for emerged geckos using powerful head/hand torches. The survey area is identified in Map 2.

No arboreal geckos were detected within or along the bordering forest edges across the two nights of nocturnal VES. Earlier surveys also failed to detect arboreal geckos. Weather conditions for the two nights were considered suitable for gecko emergence and are detailed alongside survey effort in Table 2.

Table 2. Nocturnal VES survey effort summary.

Date	Species Detected	Activity and effort	Weather
5 December 2023	No species detected	Spotlighting, 5 person hrs	Clear, 16.6-17.7 °C
6 December 2023	No species detected	Spotlighting, 6 person hrs	Overcast, 16.3-18.4 °C

Diurnal VES for diurnal (day active) skinks were conducted following tuatua surveys, scanning for emerged/basking lizards around the dunelands on Puheke Beach. Manual searches during the day were also undertaken opportunistically across the site (e.g., under logs and vegetation).

Two species of skink were detected during surveys, including shore skinks and the invasive plague skink. These two species have previously been identified at Puheke Beach/Lucklaw Farm during past lizard surveys (Boffa Miskell 2022, Wildlands 2023). In total, nine shore skinks were observed within duneland around vegetation or under woody debris and seaweed across the beach (Map 2, Figure 2 and 3). Plague skinks were only detected around the western end of Puheke Beach in the dunelands and in kikuyu grassland or around the farmhouses (dwellings). Moko skink, previously reported to being on the site, were not detected during surveys.



Figure 2. Shore skink basking on woody debris in dunelands on Puheke Beach.



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*Figure 3. Shore skink basking on the edge woody debris in dunelands on Puheke Beach.*

### **Acknowledgement of the limitations of lizard survey methods**

Lizard surveys may have poor detection rates because of typically low population densities (particularly in mainland populations), species' cryptic colouration, inherent difficulty in surveying preferred habitats (e.g. dense, tall and/or visually complex vegetation) and behaviour/activity patterns. As such, even intensive lizard surveys using a variety of active and passive methods may not detect any individuals in the population or, possibly, all species present.

### Key Findings

Shore skinks appear to be relatively abundant and widespread across the dunelands with nine individuals opportunistically observed while walking through the dunelands. While no moko skinks were detected during our surveys, a previous observation of this species on Puheke Beach is significant, as this species is considered to be rare on the mainland, only known from a small number of locations.

Kānuka forest habitat present within Lucklaw Farm was considered to provide suitable habitat for both Northland green geckos and Matapia geckos. However, these habitats had been subjected to widespread historical clearance with small pockets of kānuka and other indigenous vegetation persisting in gullies. Since, areas of kānuka have re-established throughout the farm. It is possible that low numbers of geckos may have persisted in these remnant fragments and have slowly dispersed across the site at low densities, however, none have been detected during surveys.

Most of the headland cliff face was inaccessible to search. The vegetation at the top of the headland and the eastern face of the headland along Puheke Beach was searched but no geckos were observed. Coastal cliff faces to the north of the farmhouses may provide habitat for Matapia geckos.

Yours sincerely

**BOFFA MISKELL LTD**



Matt Turner

**Ecologist/Herpetologist**

## References

Boffa Miskell Limited 2022. Puheke Beach Ecological Values. Memorandum prepared by Boffa Miskell Limited for John & Andrea Sturgess.

Hitchmough R, Barr BP, Knox C, Lettink M, Monks JM, Patterson GB, Reardon JT, van Winkel D, Rolfe J, Michel P 2021. Conservation status of NewZealand reptiles, 2021. Wellington, Department of Conversation. 15 p

Wildlands 2023. ASSESSMENT OF INDIGENOUS BIODIVERSITY AT ROTOKAWAU LAKES AND ENVIRONS, KARIKARI PENINSULA, NORTHLAND. Report prepared by Wildlands for John and Andrea Sturgess.