

# GLOBAL RE-INTRODUCTION PERSPECTIVES

*Re-introduction case-studies from around the globe*



**Edited by  
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**Cover photo:** Clockwise starting from top-left:

- Formosan salmon stream, Taiwan
- Students in Madagascar with tree seedlings
- Virgin Islands boa

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## Re-introduction of skink and gecko species to Marotere Islands, Northland, New Zealand

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### Introduction

The distribution of the Mokohinau skink (*Cyclodina townsi*) is restricted to the Mokohinau Islands (two very small islands: stack H 0.74 ha, Tarakihi Island 3.0 ha) and the Maretere (Chickens) Islands (three small islands: Muriwhenua/Wareware islands 8.75 ha and Middle stack 1.35 ha). It's conservation status is: IUCN not listed and Range Restricted (Stable, Human Induced). Re-introduced to Lady Alice Island 155ha, Whatupuke Island 102 ha and Coppermine Island 79.5 ha. McGregor's skink (*Cyclodina macgregori*) is restricted to Motuharakeke Island, Cavalli islands group 6 ha, Mauitaha Island in the Bream Island group 4.5 ha, Sail Rock, Hen & Chickens islands group 2.1 ha and Mana Island near Wellington 217 ha. It's conservation status is IUCN Threatened (VU D2), and Range Restricted (Stable, Human Induced). Re-introduced to Lady Alice and Whatupuke islands. The Pacific gecko (*Hoplodactylus pacificus*) is widespread but uncommon on the North island mainland and islands with predators. Common to abundant on a suite of predator free islands. It's conservation status is IUCN not listed and Gradual Decline (Human Induced). Re-introduced to Lady Alice Island.

### Goals

- Goal 1: To achieve the restoration objectives identified in the Action Plan for Taranga Ecological District and the Restoration Plan for the Principal Marotere Islands.



Mokohinau skink (*Cyclodina townsi*)

- Goal 2: Increase the number and size of populations of the rare McGregor's skink.
- Goal 3: Increase the number and size of populations of the rare Hen and Chickens Mokohinau skink populations.
- Goal 4: Test the design of gecko release strategies using funds provided by the Green Package.

### Success Indicators

- Indicator 1: Monitor after five

years and provide evidence of survivorship of released lizards.

- **Indicator 2:** Monitor after 10 years and provide evidence of breeding occurring.
- **Indicator 3:** Monitor after 15 years and provide evidence of a self-sustaining population by capturing more lizards than were released and a greater proportion of new lizards to released lizards



**Pacific gecko (*Hoplodactylus pacificus*)**

## Project Summary

**Feasibility:** The habitat on the three islands to receive the lizards had all been modified, firstly by Maori occupation and then by European with mining on Coppermine Island and grazing on Lady Alice Island. Whatupuke Island is considered to be the least modified and Coppermine Island the most modified. All three islands had Pacific rats (*Rattus exulans*) locally known as **kiore** present. These were eradicated in 1993 (Whatupuke), 1994 (Lady Alice) and 1997 (Coppermine). The Mokohinau skink survived on three small islands that would have been attached during the last ice age and up to 5,000 years ago. The McGregor's skink survived on Sail Rock, part of the Hen & Chickens group and on Mauitaha Island about 12 km away. Pacific geckos were known from Whatupuke and Coppermine islands in very low numbers but had not been located on Lady Alice Island. The New Zealand Department of Conservation had Translocation Guidelines in place. A proposal was prepared and submitted, and was approved by the Director of Protected Species Policy Division on 31<sup>st</sup> March 1997.

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**Implementation:** The local Maori tribe (iwi) Ngatiwai were consulted over the restoration of the islands, the eradication of kiore and the re-introductions of species. Initially, Ngatiwai were opposed to the eradication of kiore which they considered to be a taonga (treasure) but agreed for it to occur on the Marotere (Chicken) Islands but not Taranga (Hen) Island providing the department monitor the response of resident species. Studies of plant regeneration, small seabird breeding success, forest bird recovery, lizard and tuatara (*Sphenodon punctatus*) recovery were carried out and still continue. In all studies the response was positive and in some cases dramatic. These results were presented to Ngatiwai in a series of workshops and presentations. Because these islands were all connected in the recent geological past and are situated close to each other, it was considered not necessary to carry out disease/parasite monitoring. The populations of McGregor's skinks on Mauitaha Island and Sail Rock were assessed and Sail Rock was chosen because the numbers captured were much higher. Likewise the Mokohinau skink populations on Muriwhenua/Wareware islands and Middle stack were assessed. All three islands carried substantial populations. Middle stack is eroding badly and will eventually become

# Reptiles



**View of Pupuha, Muriwhenua and Wareware islands (left to right) from Lady Alice Island**

unsuitable for Mokohinau skinks. Skinks were taken from Muriwhenua Island and Middle stack. Eight small rock stacks within the island group were surveyed and assessed for populations of Pacific geckos. Pupuha Island was chosen as the source population.

A minimum of 30 lizards for each translocation was chosen. Because Ngatiwai opposed toe-clipping as the method of marking the lizards, it was decided to use adults or large juveniles making it easy to determine breeding after

10 years when all lizards would be adult. We also experimented with photo-identification and each lizard released was photographed, described, measured, weighed, sexed and checked for natural toe-loss. We endeavored to capture equal numbers of male and female lizards, and our captures were timed to maximize the likelihood of capturing gravid females, thereby potentially increasing the numbers of lizards released. All lizards were transported either in cloth bags or in large plastic expedition boxes with leaf litter included. All were processed on the day of capture and released that day or next morning.

**Post-release monitoring:** Skinks were monitored by the installation and running of 4 liter baited pitfall traps twice a year. The geckos were provided with various shelters for them to occupy and these were checked twice a year. The first release of Mokohinau skinks and the only release of Pacific geckos were monitored yearly for the first five years. The Whatupuke release of Mokohinau and McGregor's skinks were monitored after two years because of difficulties monitoring the first release of Mokohinau skinks on Lady Alice (see below). The other translocations have been monitored to the regime described in the Translocation Proposal. As the first releases were carried out in 1997, no translocation has reached phase three of the success criteria and monitoring of all releases continues.

## Major difficulties faced

- The first release of Mokohinau skinks was made in forest within a valley on Lady Alice Island. Only three were ever recaptured and these died in a pitfall trap in which the lid had sprung between monitoring periods. These three were in a trap diagonally opposite their release site, some 25 m away. Therefore, it is assumed the lizards migrated out of the forested area and up onto a sunny ridge. Subsequent releases were all into beach sites and survivorship appears to be very successful. A second release was made onto a beach on Lady Alice Island.
- Photographic identification was reasonably successful but difficulties

encountered included lack of definition of some photographs and the influx of juveniles which continually grew in size and pattern.

- While success criteria for phase 1 and 2 has largely been achieved for most releases, the numbers caught have been relatively low. Because lizards are much more difficult to monitor than say birds, proving success criteria 3 may be difficult and will probably require a large amount of effort.



**Release of Pacific geckos on Lady Alice Island by David Towns & Tanya Monroe, representative of Ngatiwai Iwi tribe**

**Major lessons learned**

- Following a pest eradication program you need to allow sufficient time to elapse and then carry out intensive and extensive surveys for the species. We surveyed Lady Alice and Whatupuke islands after 8 years and after we had commenced releases (2 years after eradication). So, 6 years after we released Pacific geckos, we discovered 2 sites elsewhere on the island where they occurred. These were not released geckos but geckos that had obviously survived in the presence of kiore. Had we waited we would not have needed to transfer any. Had we brought the geckos from elsewhere, we could have potentially mixed the gene pool.
- Because of difficulties in identifying individual animals in this project and others, research is underway to find an easier method.

**Success of project**

Highly Successful	<b>Successful</b>	Partially Successful	Failure
	√		

**Reasons for success/failure:**

- Apart from the first release of Mokohinau skins, all the releases have met success criteria 1 & 2.
- All the released lizards recaptured have increased in size, weight and condition thereby showing the habitat is suitable.
- The project has been useful in proving to Ngatiwai that the eradication of kiore and the subsequent re-introductions of lizards is of benefit to them.