

What values will be met by doing a translocation?

Parker et al. 2023. Conservation translocations of fauna in Aotearoa New Zealand: a review. NZ Journal of Ecology.

The two biggest biological challenges for conservation translocations of birds in Aotearoa New Zealand



Photos: Marc Choromanski, Martin Sanders, KAP

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¹Parker Conservation Ltd, ²Massey University, ³ University of Auckland, ⁴Deceased, ⁵Manaaki Whenua, ⁶Auckland Council, Te Papa Tongarewa ⁷

A very short history of conservation translocations...

- A lot globally
- Success rates are low
- A key conservation tool in Aotearoa



Habitat and habitat quality...

Habitat:

“...the resources and conditions in an area that produce occupancy – including survival and reproduction – by a given organism.”

Habitat quality:

“...the ability of the environment to provide conditions appropriate for individual and population persistence”

Hall LS, Krausman PR, Morrison ML 1997. The habitat concept and a plea for standard terminology. Wildlife Society Bulletin 25: 173–182.

Habitat and habitat quality...

Habitat:

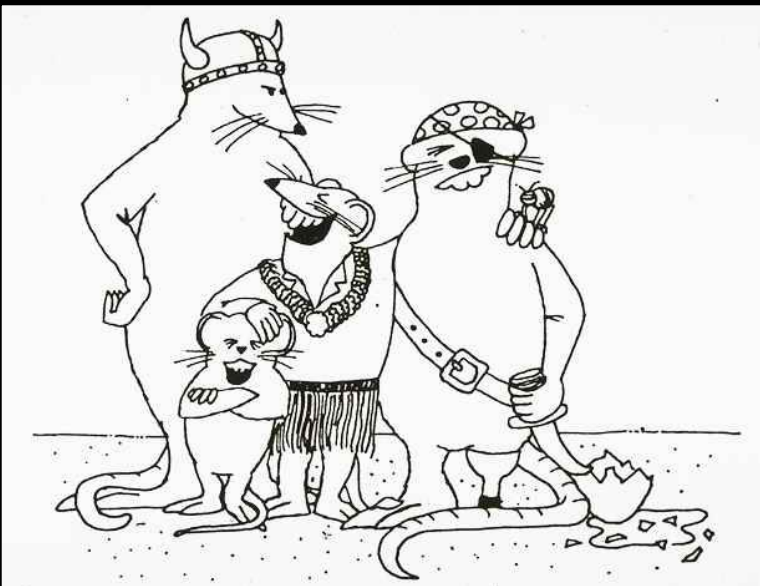
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Testing vulnerability

- For species progressive translocation to:
 - Sites where predators are absent
 - Sites where predators are absent most of the time and only ever at low densities
 - Sites where predators are present but suppressed to low numbers
- For sites progressive translocation of more vulnerable species
- Surveillance and targeted monitoring is essential

Tāwharanui Open Sanctuary

Pest Control

- 2004 eradication of 8/10 introduced mammals
- Extensive control network
- Most introduced mammals at zero density

Biodiversity recovery

- 9 species reintroduced
- 7 species naturally recolonised
- Many others increased in abundance



Tāwharanui Open Sanctuary

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Biodiversity recovery

- 9 species reintroduced
- 7 species naturally reclaimed habitats
- Many others increased in abundance
- Overall indigenous dominance



Vulnerability of Reintroduced Birds

Popokatea

- 2007
- Extant on mainland
- Pest sensitive

Toutouwai

- 2007
- Extant on mainland
- Pest sensitive



Vulnerability of Reintroduced Birds

Tieke

- 2012
- Extinct on mainland
- Highly pest sensitive

Hihi

- Planned for 2020

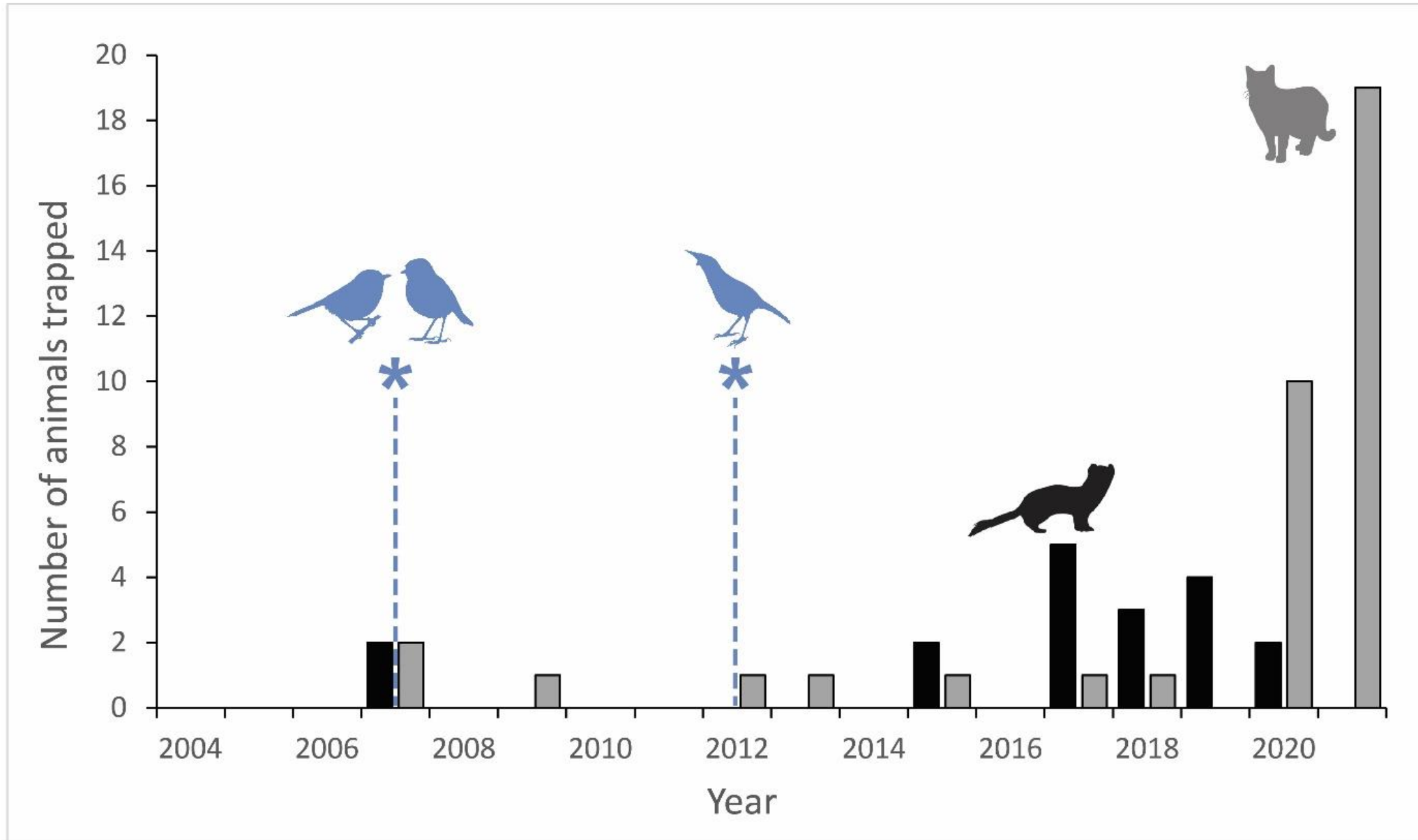


Photo: Martin Sanders

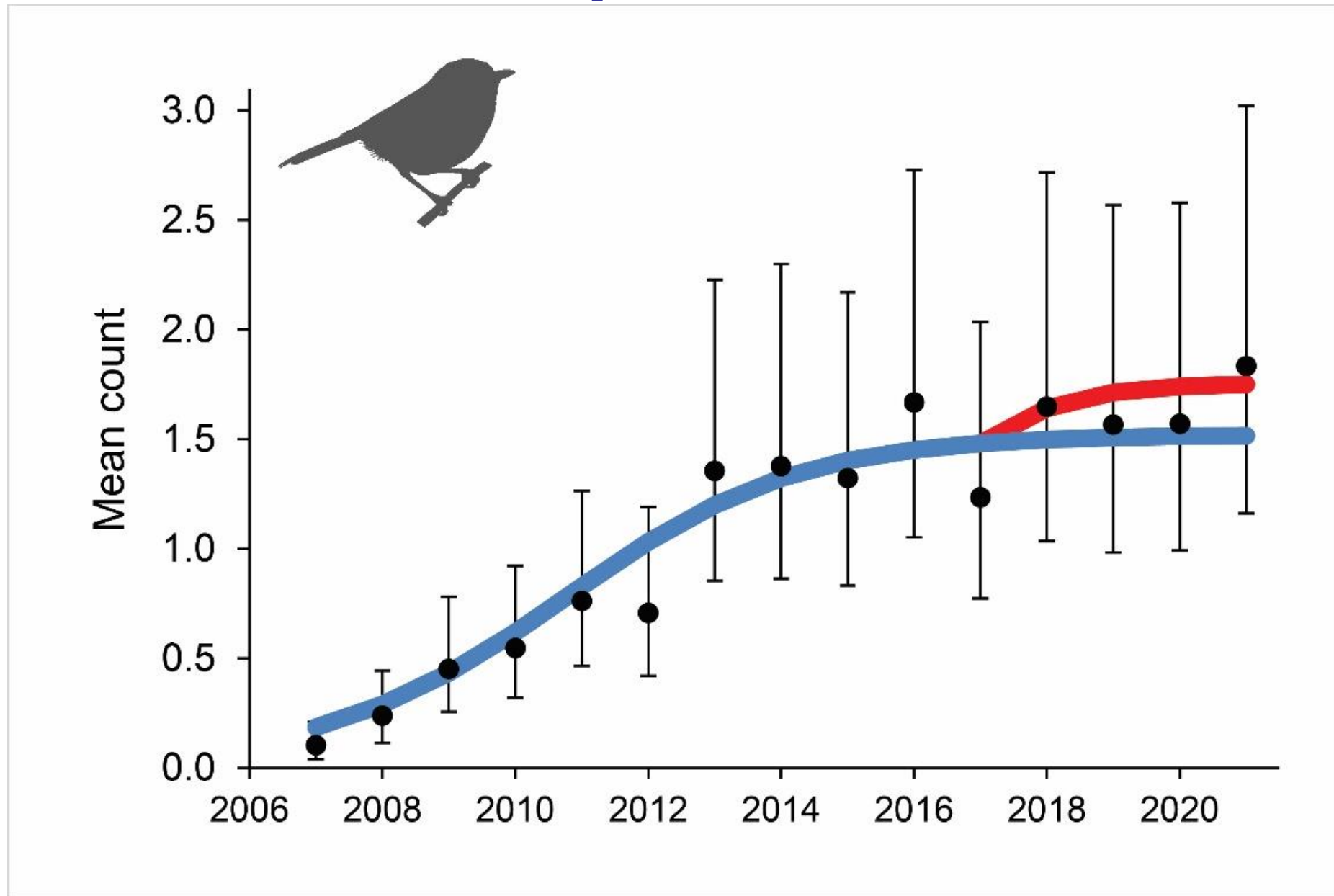


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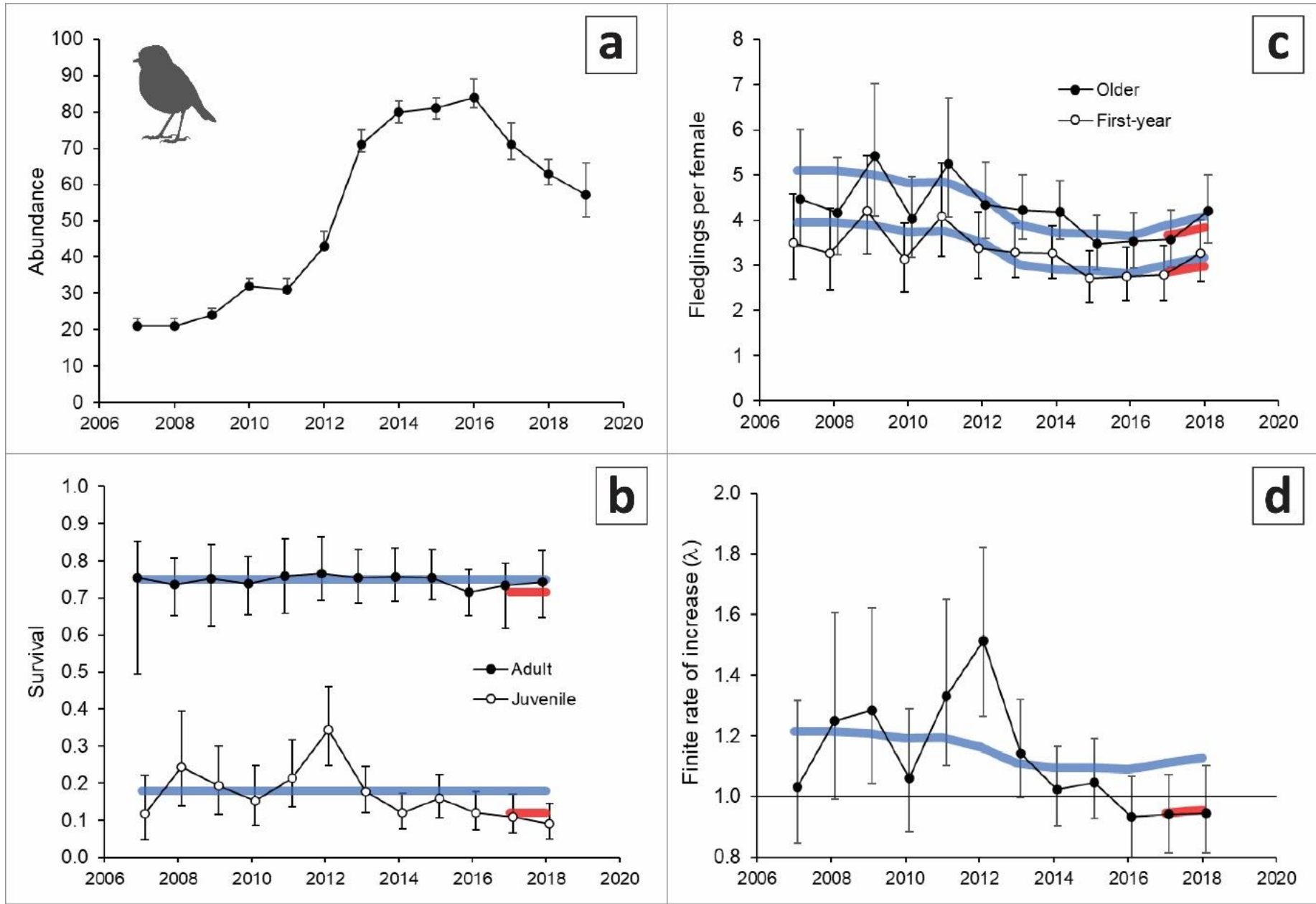
Stoat & Cat Incursions



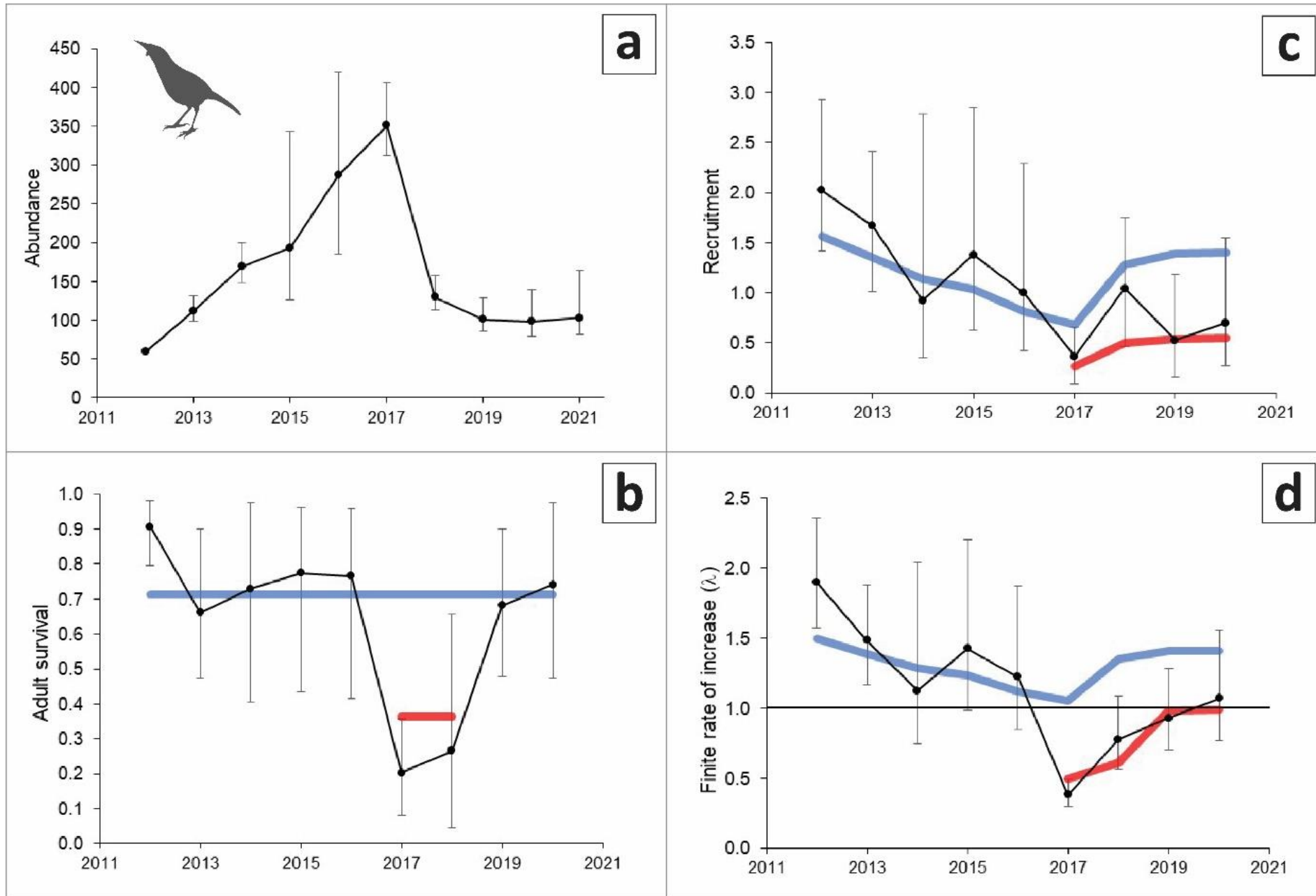
Popokatea



Toutouwai



Tieke



Population Impacts

Popokatea

- No evidence of predator impacts

Toutouwai

- Possible predator impacts but dynamics mainly driven by annual variation in juvenile survival

Tīeke

- Stoats likely caused a dramatic decline
- Cats hindering recovery?

Hihi

- Postponed...

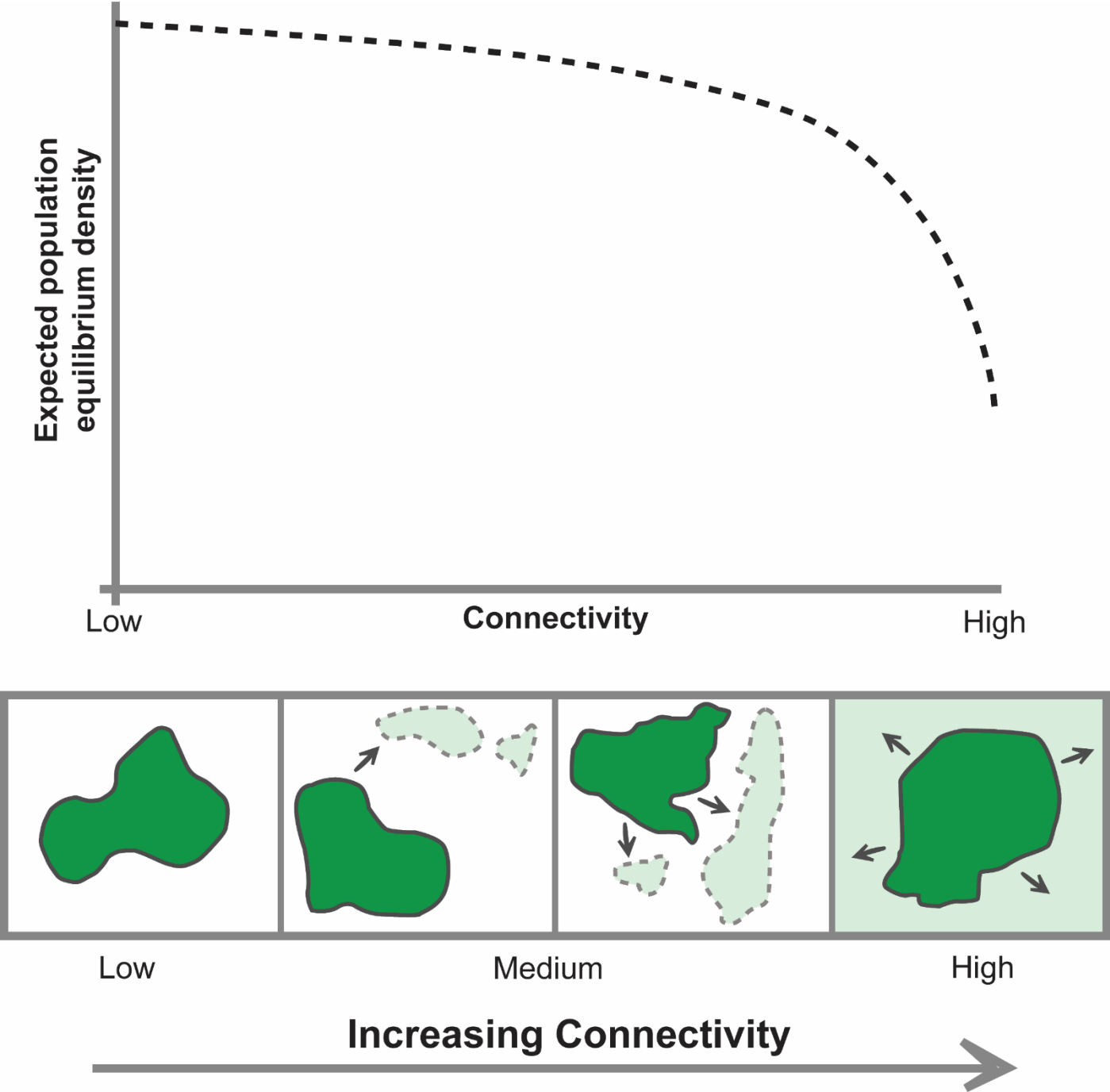


Problem number one - management implications

- Even very low numbers of key introduced mammals can cause dramatic declines in vulnerable species
- Frequent review & updating of targeted monitoring is likely essential at sites where persistence is uncertain or marginal
- Careful testing of vulnerability important for effective management and expansion of reintroduction opportunities

Connectivity

Connectivity



Parker et al. 2023. Conservation translocations of fauna in Aotearoa New Zealand: a review. NZJE 47: 3561.

Popokatea/whiteheads

- Patchy but widespread
- Moderate vulnerability to invasive mammals
- Translocated to 21 sites 1989-2017

Islands



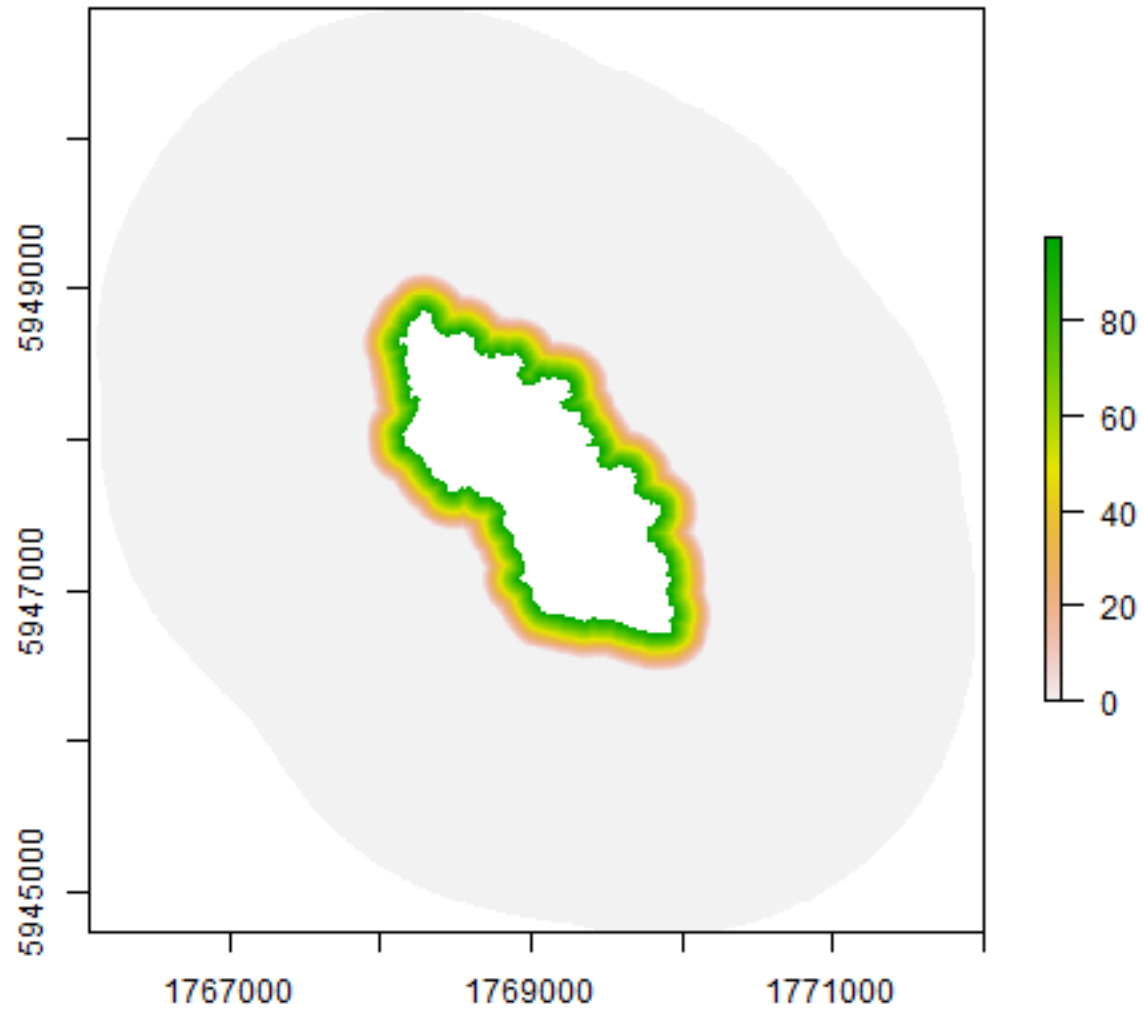
Fenced mainland sanctuaries



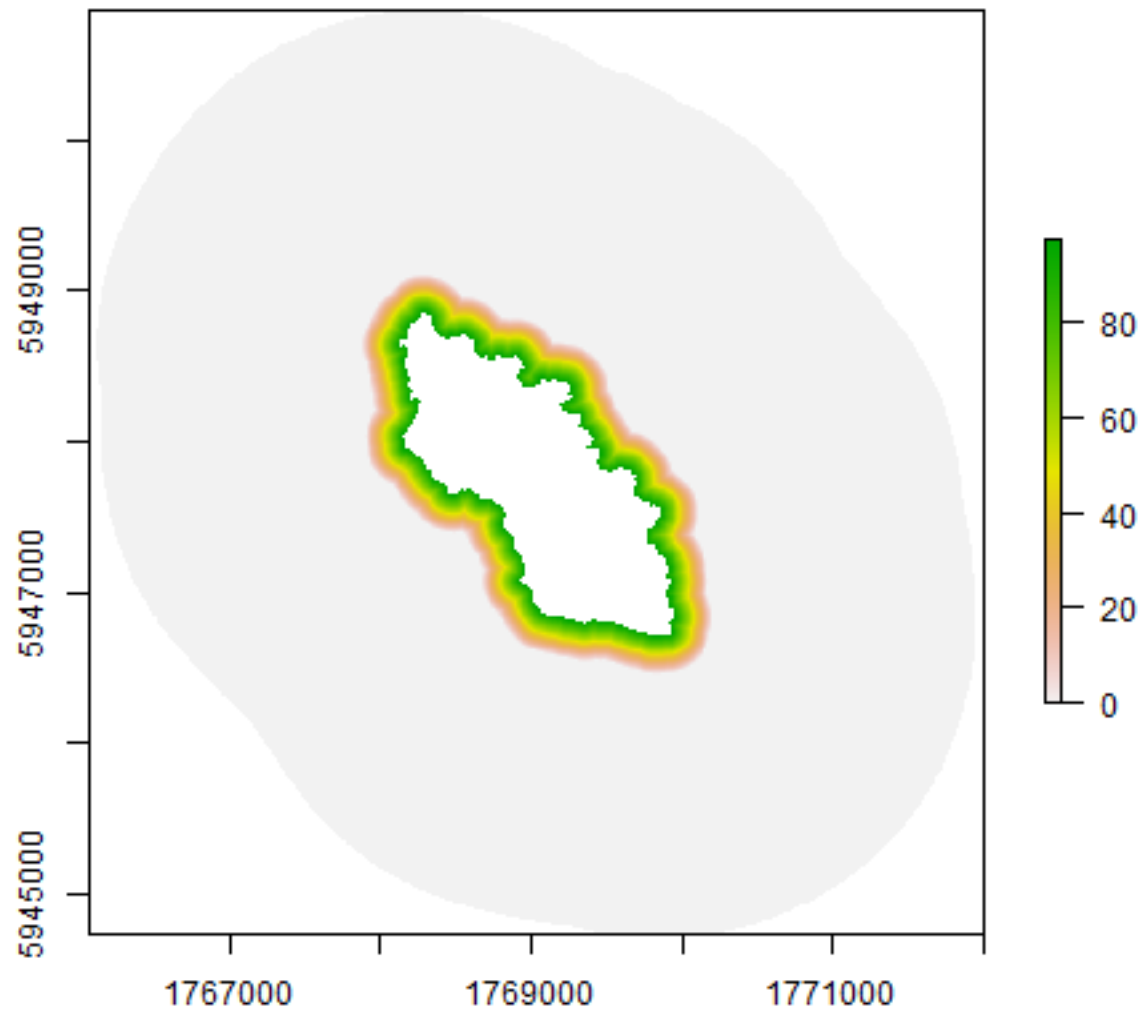
Unfenced mainland sanctuaries



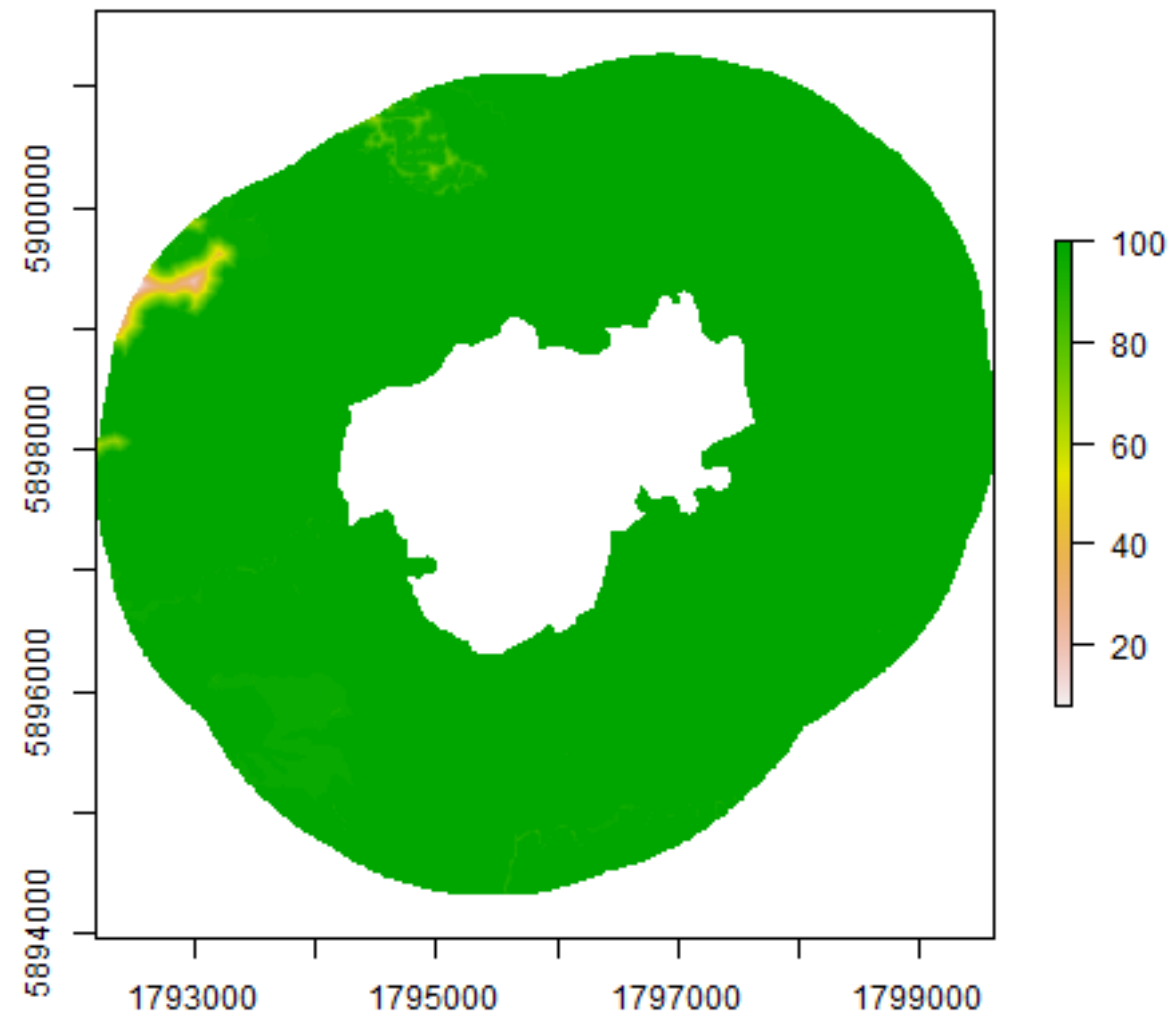
Tiritiri Matangi - successful



Tiritiri Matangi - successful



Hunua - unsuccessful



Release areas

- Two offshore islands
 - Tiritiri Matangi
 - Rangitoto
- Four fenced sanctuaries
 - Tāwharanui
 - Maungatautari
 - Zealandia
 - Shakespear
- Two unfenced sanctuaries
 - Hunua Ranges
 - Waitakere Ranges

Monitoring

- Monitoring areas 124-3231ha
- Five minute point counts
- Transect counts
- 6-21 years of data per site
- 42 observers with median of 80 counts each (range 15-3816)

Release areas

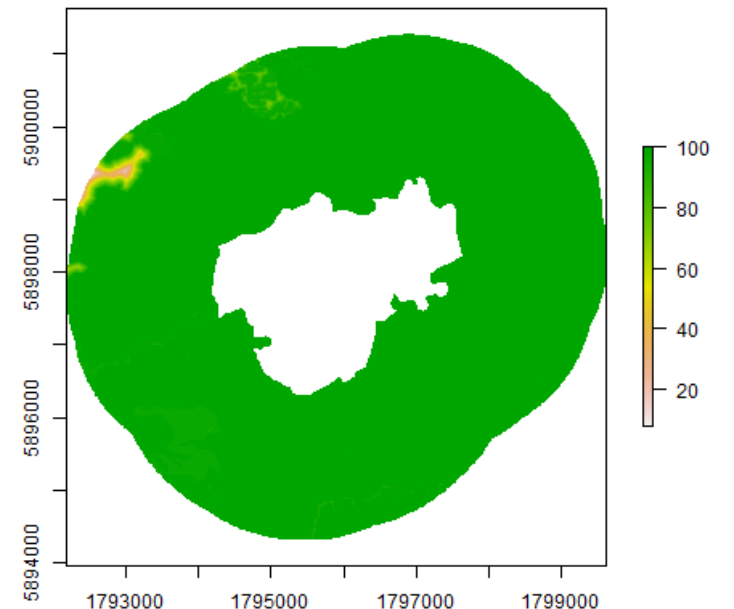
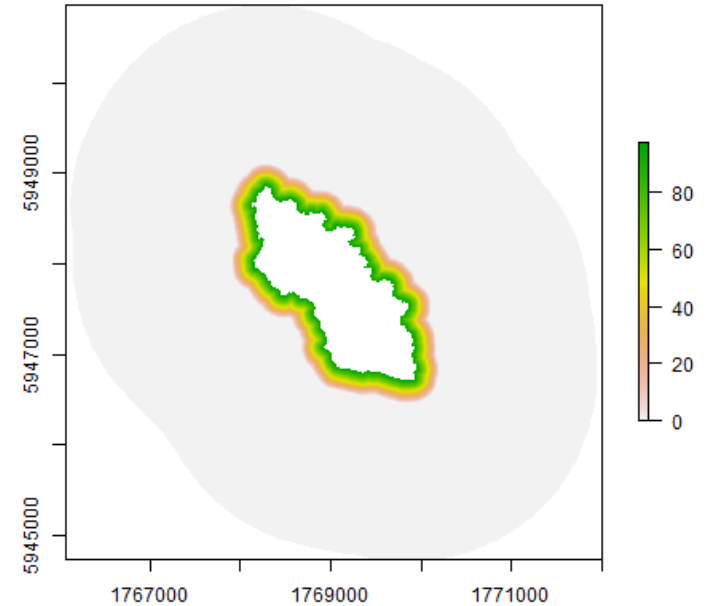
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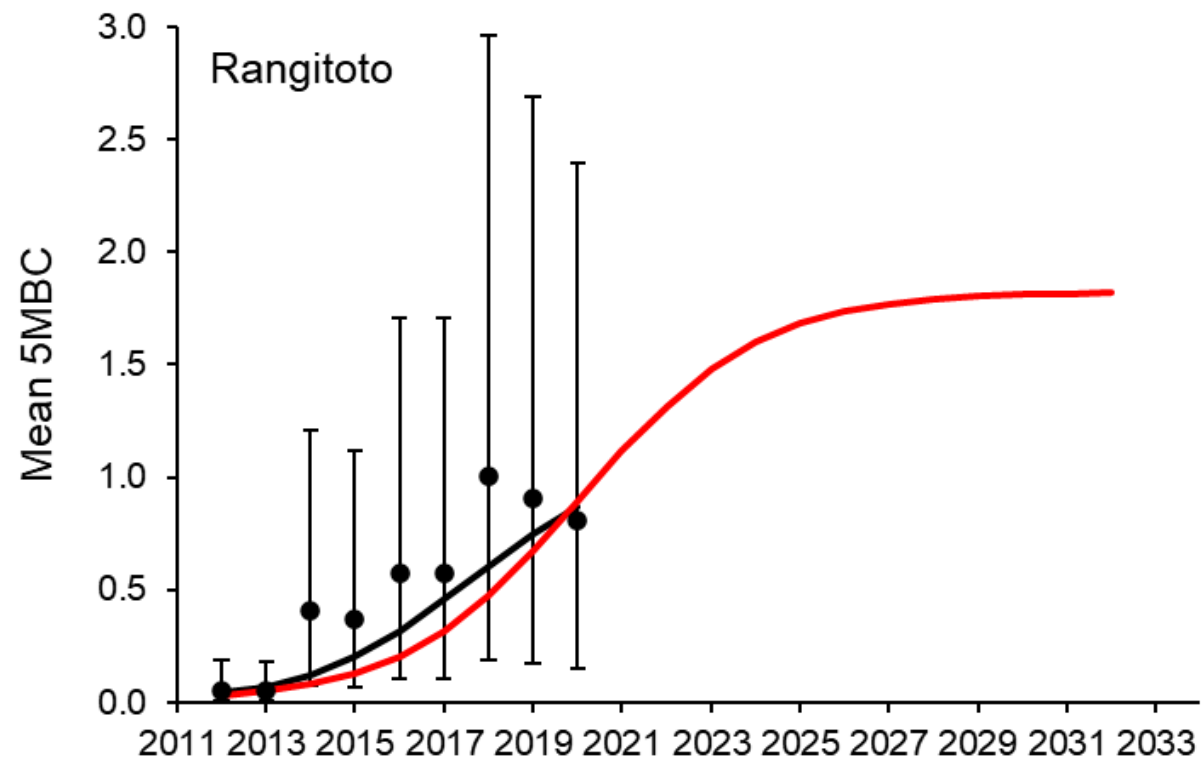
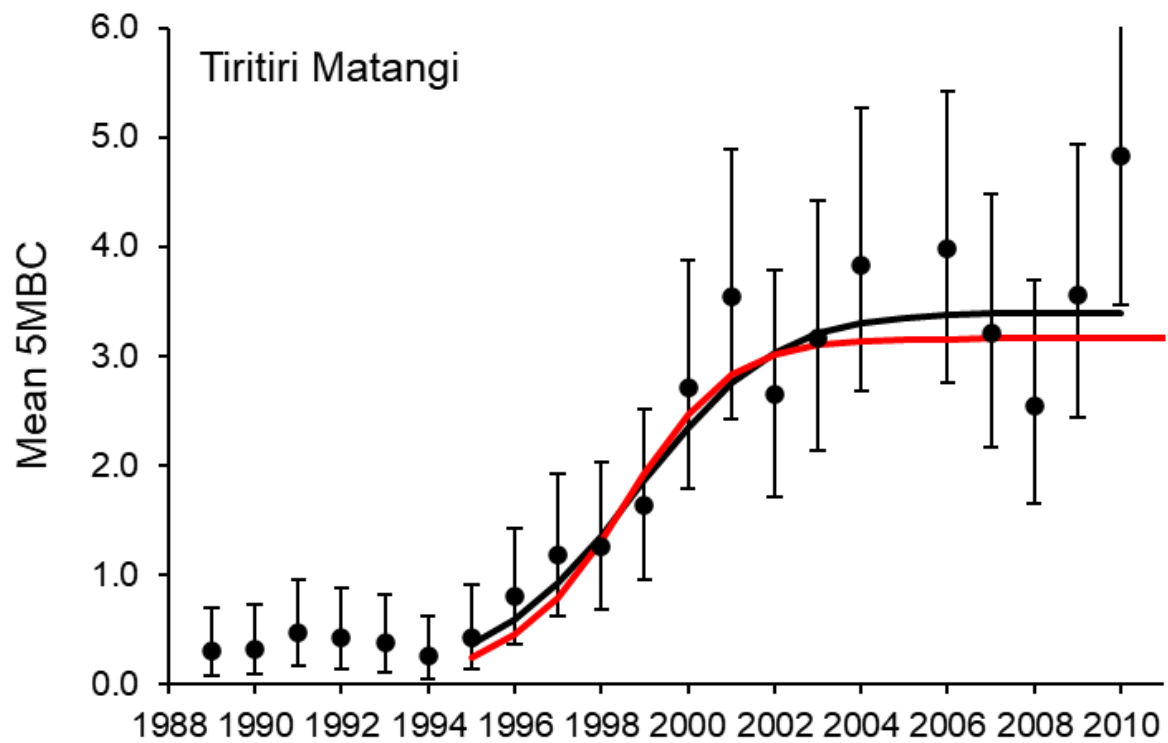
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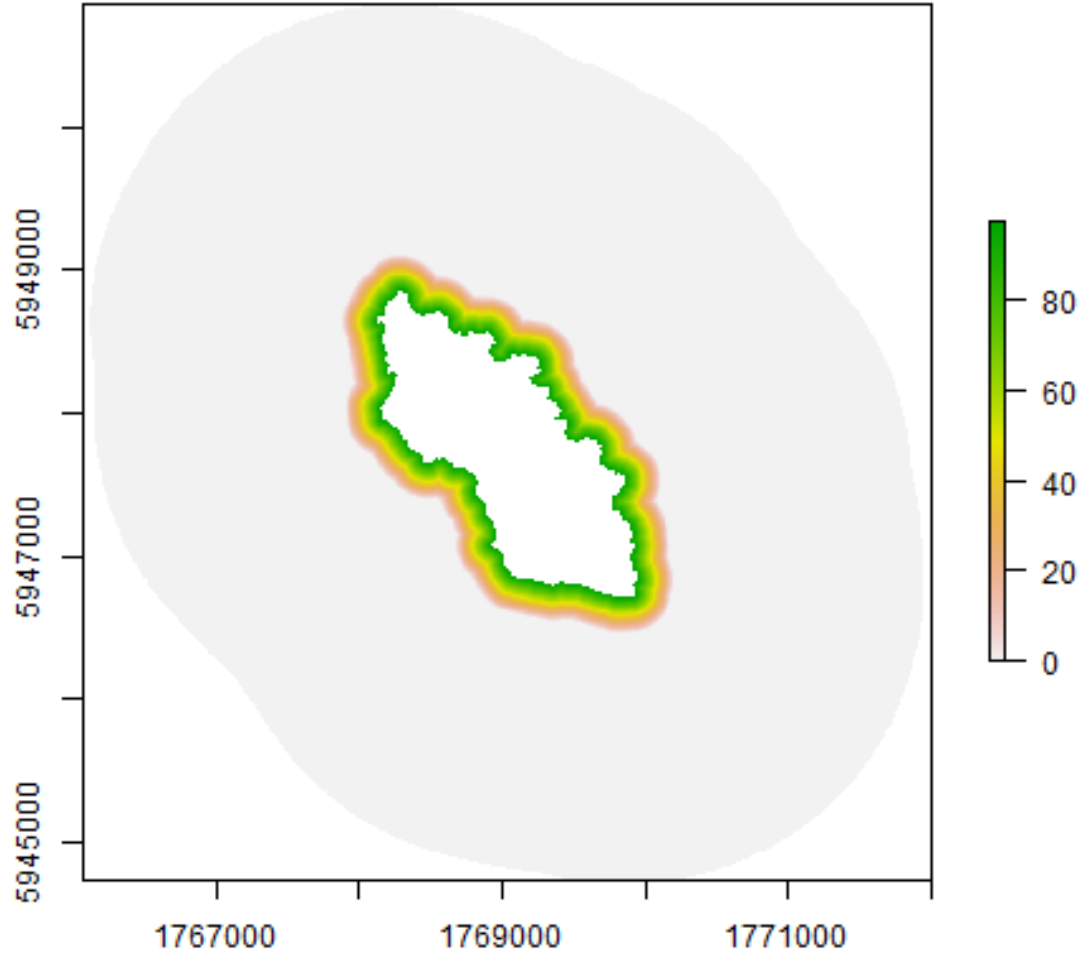
Connectivity

- Buffer permeability
 - Proportion of the 2km buffer, vegetation >2m high, gaps <250m
- Perimeter permeability
 - Proportion of perimeter with vegetation >2m high
- Habitat ratio
 - Proportion of habitat in the buffer out of that available in both the buffer and release area

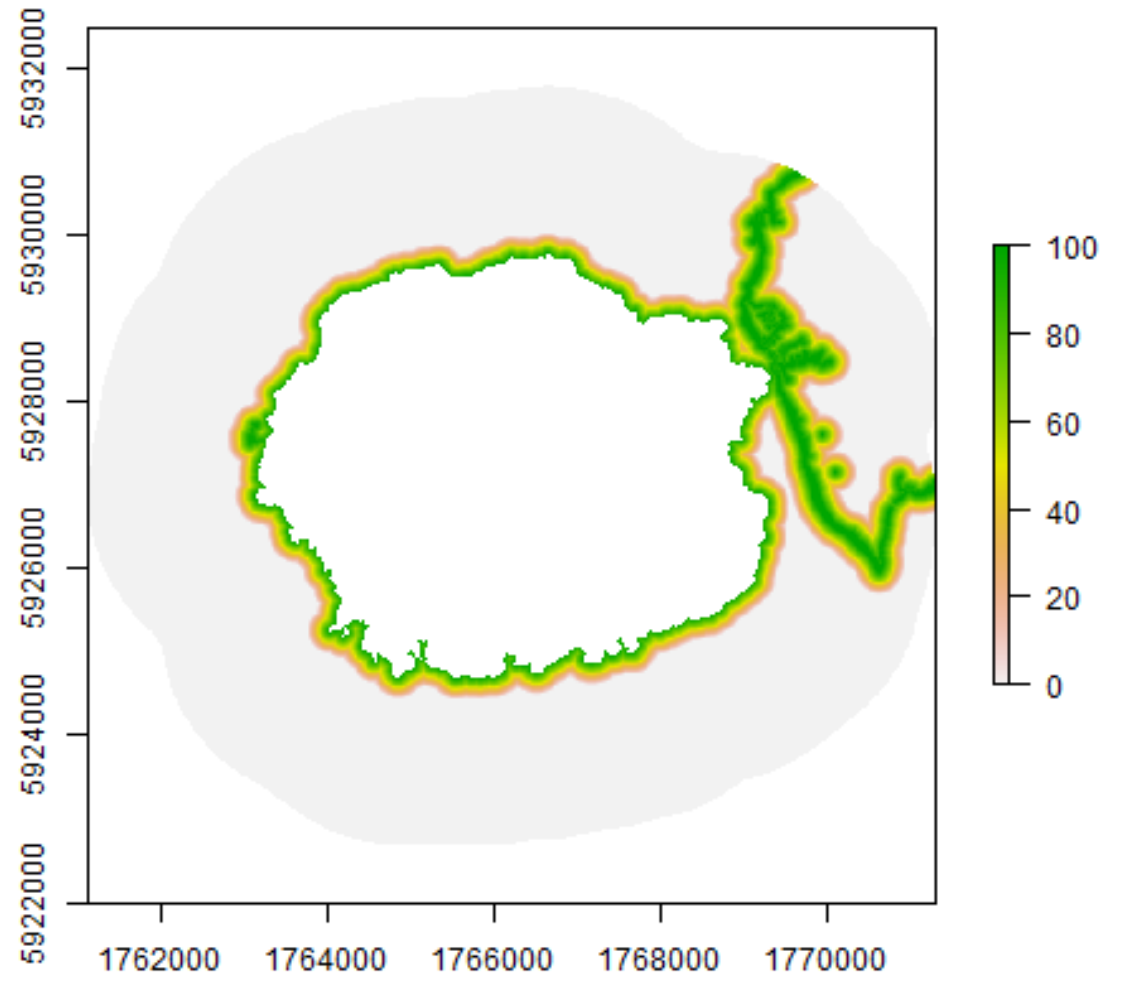


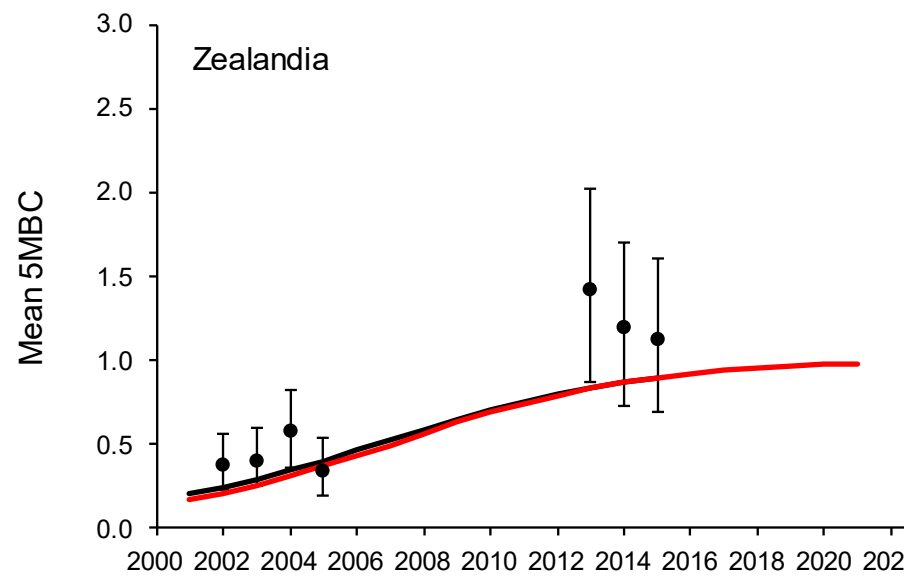
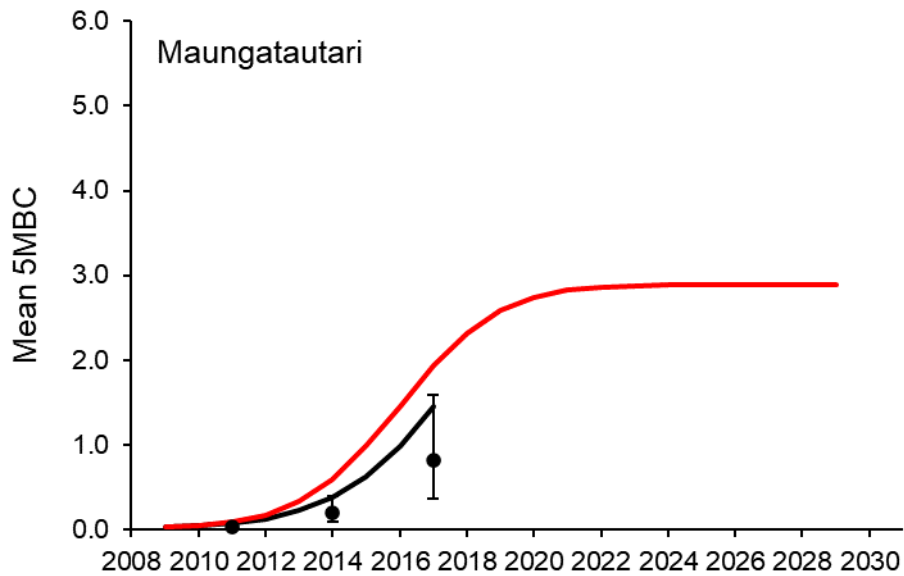
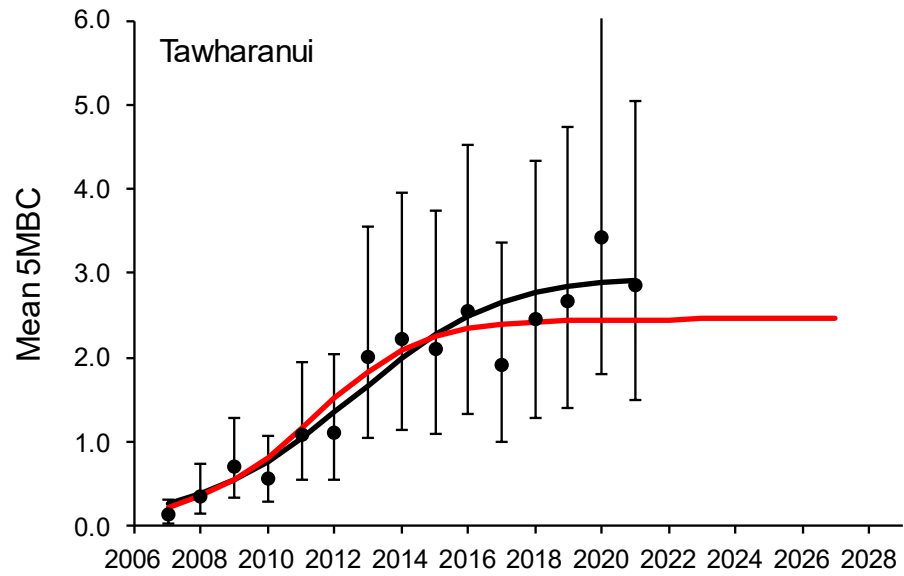
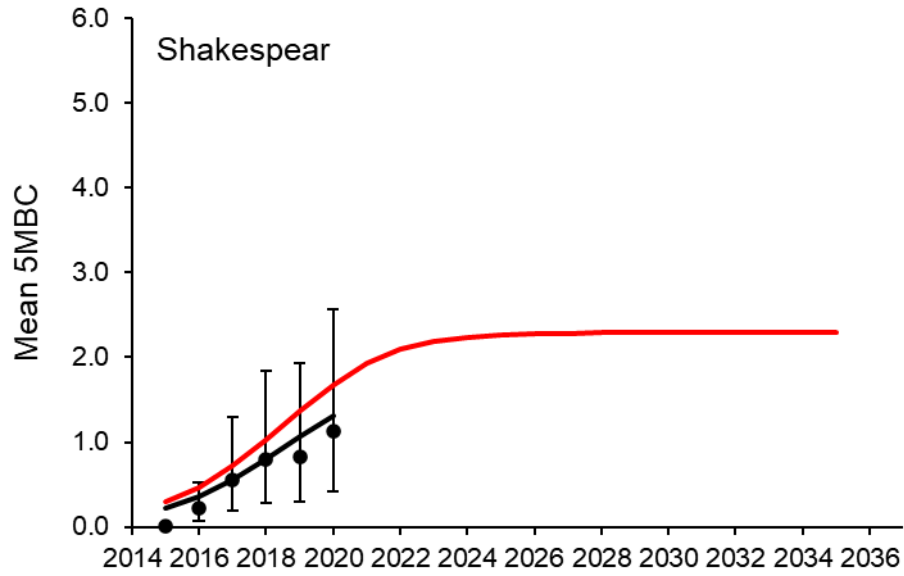


Tiritiri Matangi

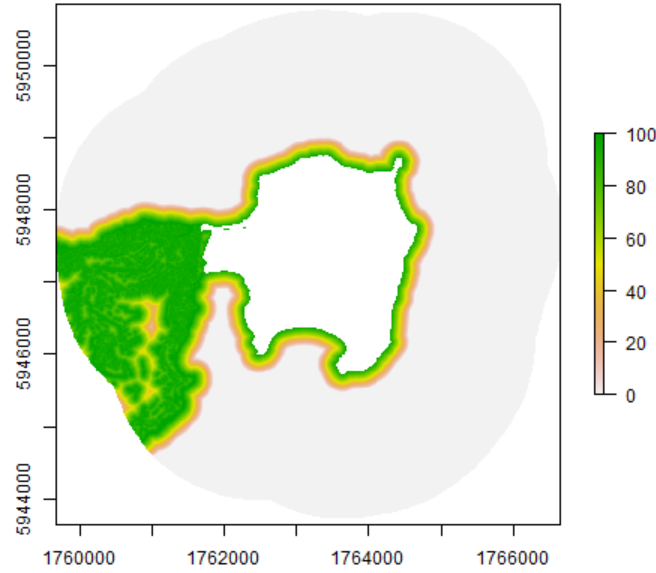


Rangitoto

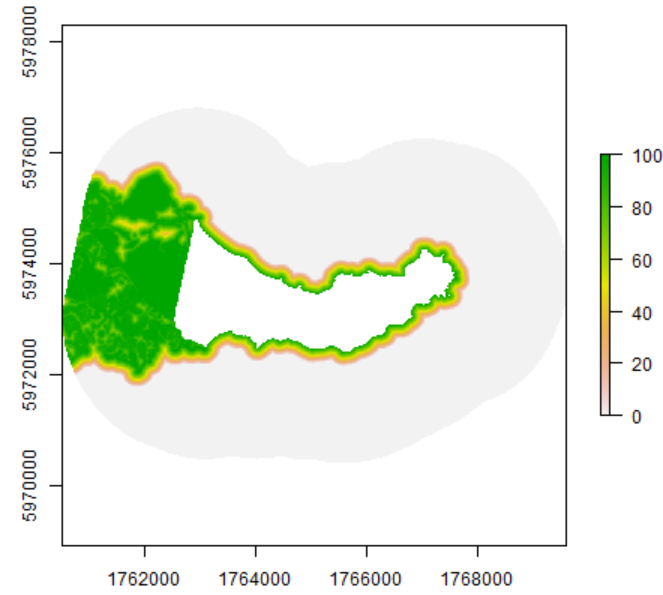




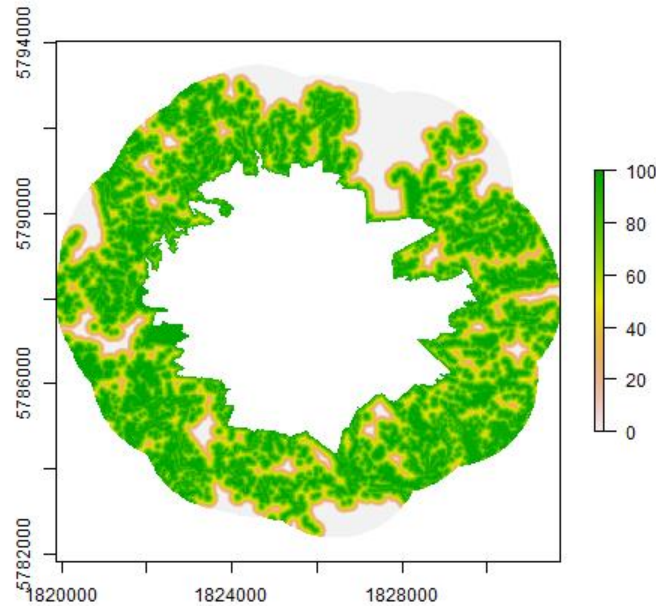
Shakespear



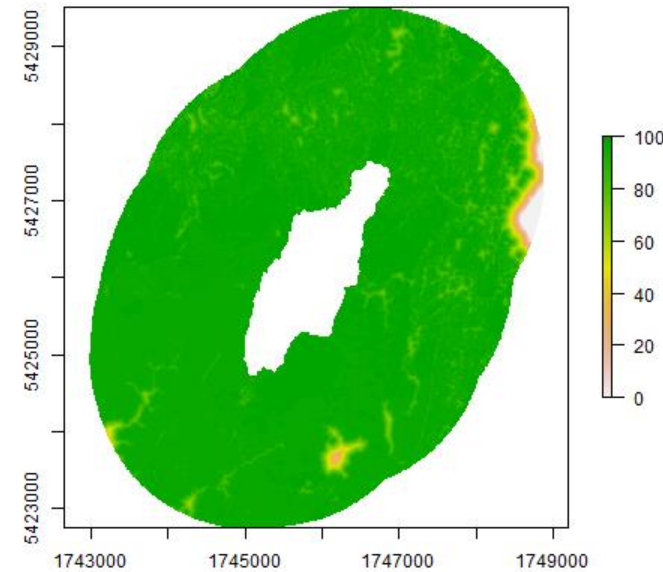
Tāwharanui

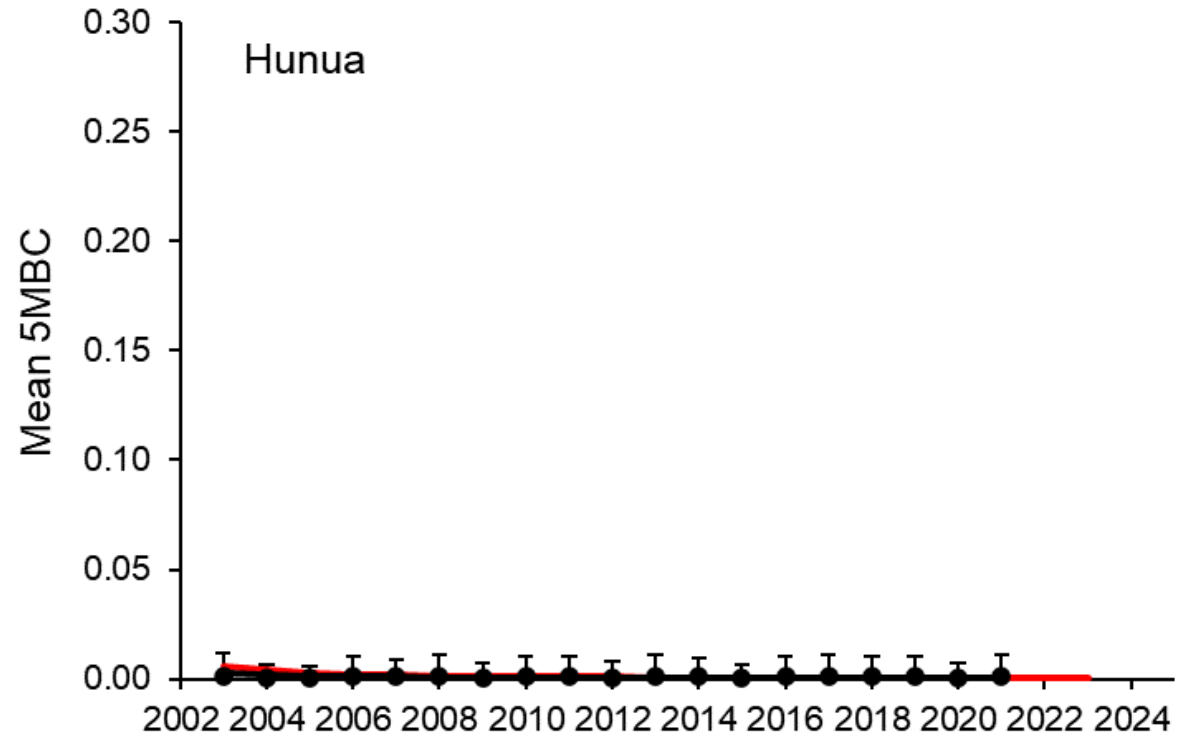
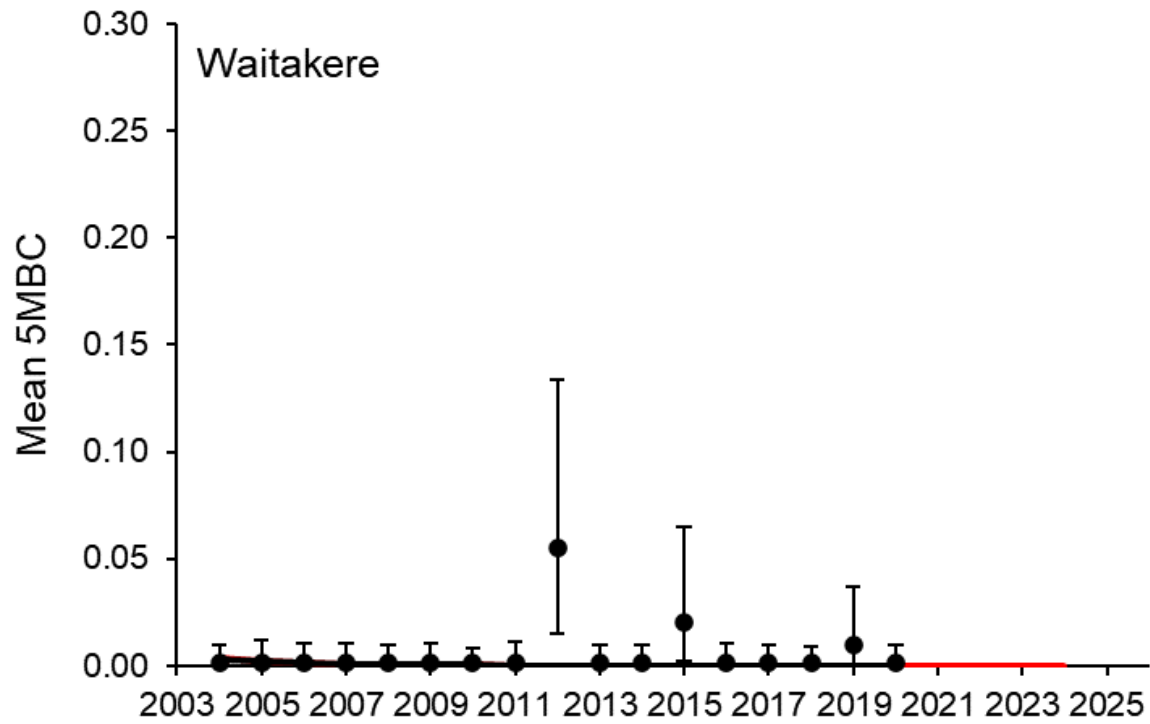


Maungatautari

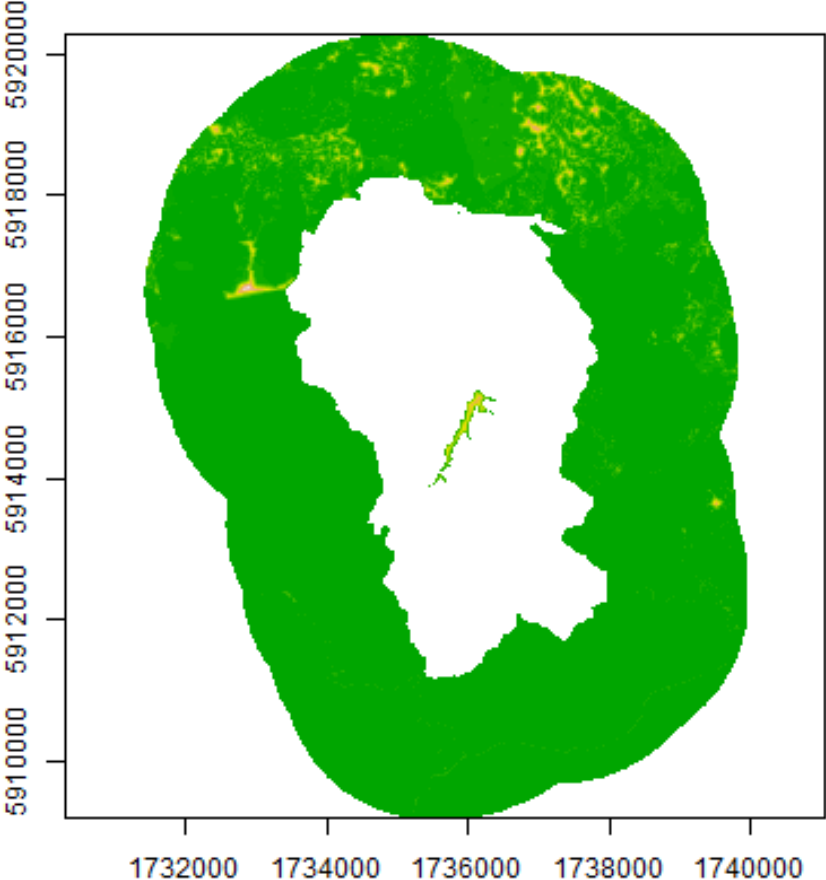


Zealandia

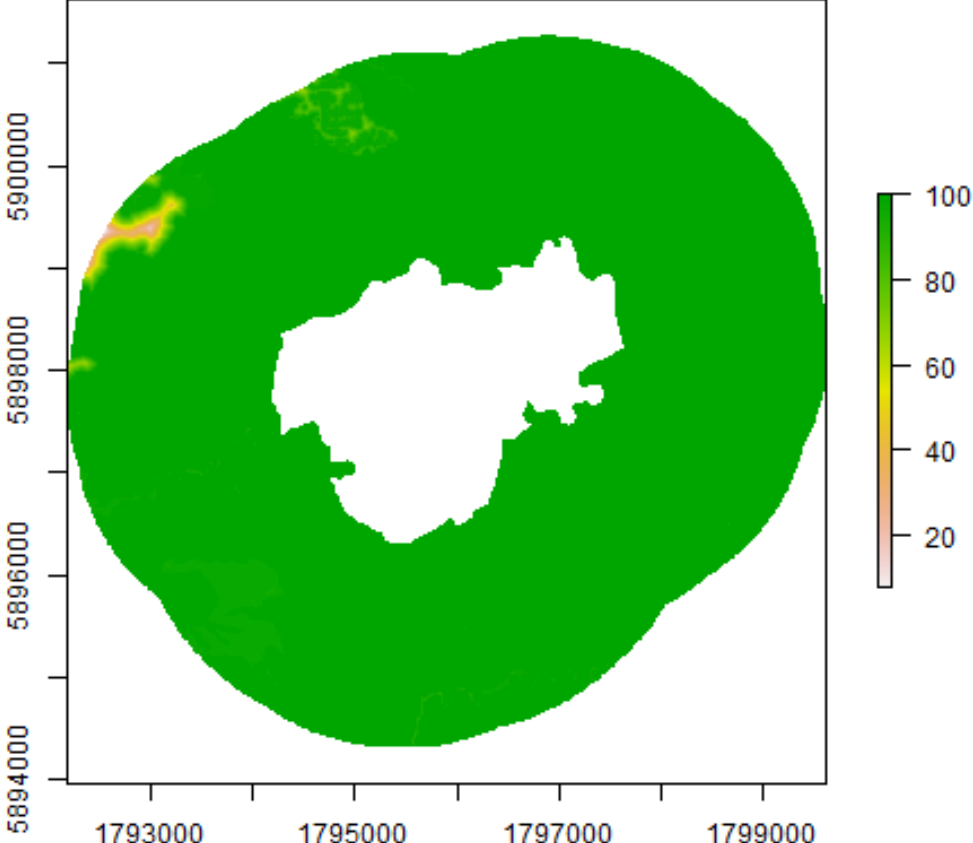




Waitakere



Hunua



Problem number two - management implications

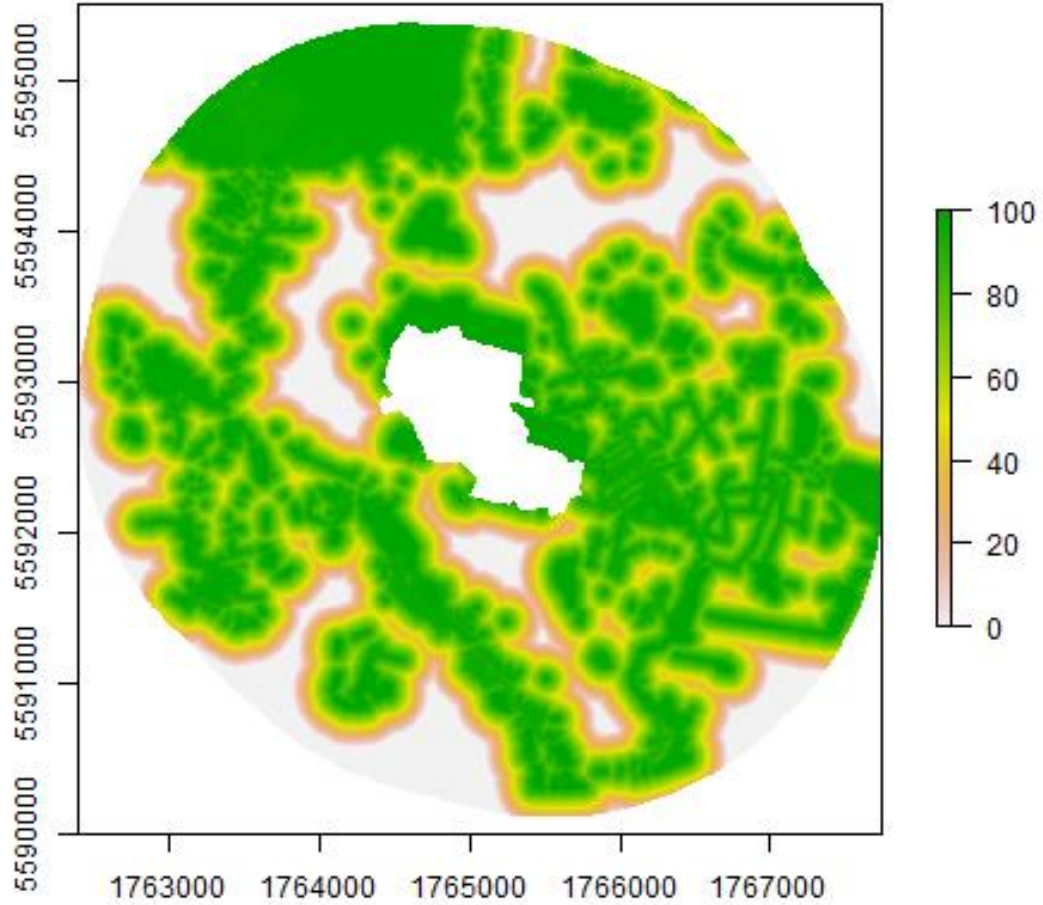
- Connectivity is a useful predictor of translocation success
- Difficult to quantify
- More monitoring = better predictions
- More sites = better predictions
- Better predictions = more translocation success



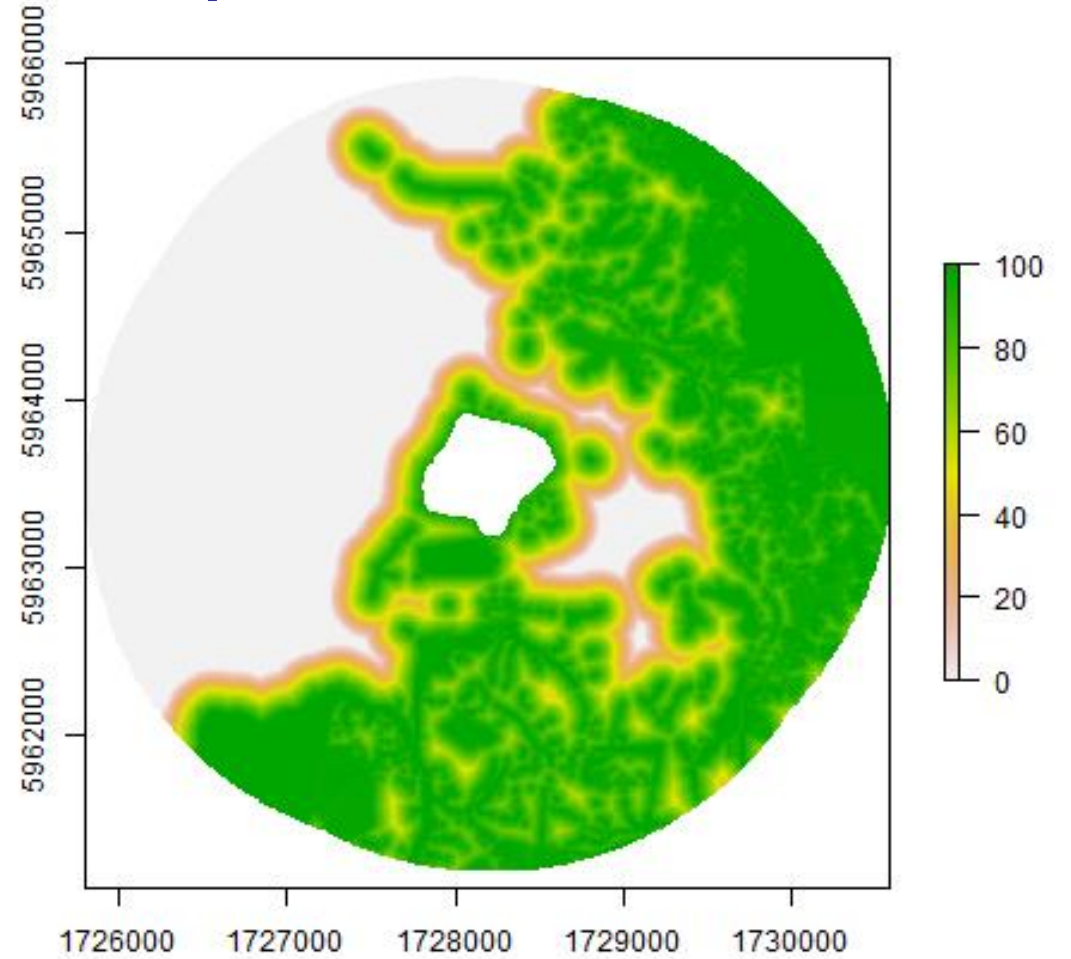
Photo: Vonny Sprey



Bushy Park Tarapuruhi



Hoopers Bush



Predicting success at new sites

