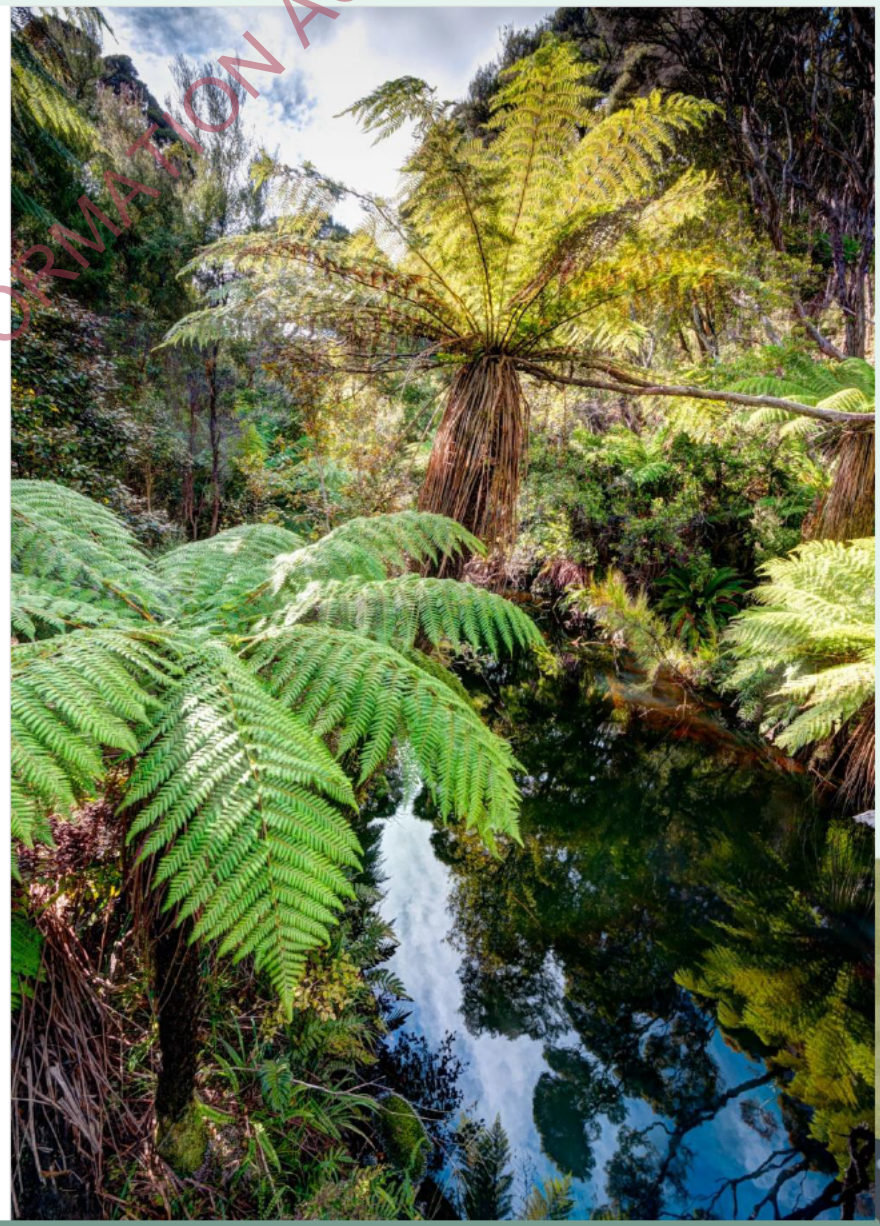
Rakiura monitoring 2010 to future

DOC Monitoring and Evaluation team

xx Month Year



Department of Conservation
Te Papa Atawhai

New Zealand Government

Contents

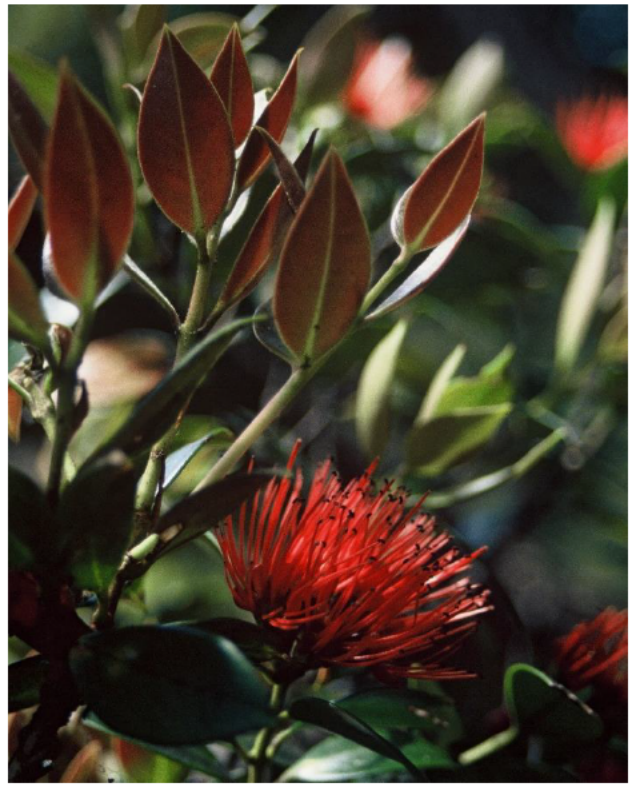
Update on monitoring since Duncan (2010) report

- Two pieces of work have been completed for Rakiura
- 1. What can be learned from National Monitoring?
- Animal abundance trends
- Changes in forest vegetation
- 2. What future monitoring is needed?
- The right scale for Rakiura

Forest health monitoring

What is it?

- Measurements that are repeated through time to detect a trend or a change
- Locations that represent the entire Park
- Target common, widespread or typical forest plants, animals and communities



Monitoring 2011-2023

Little monitoring since 2010

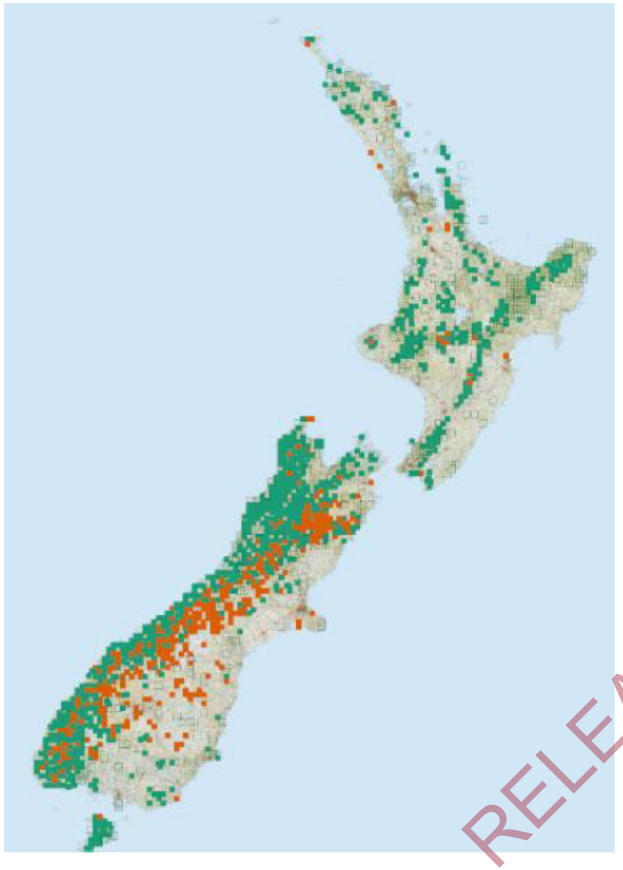
Except for Tier 1 national monitoring

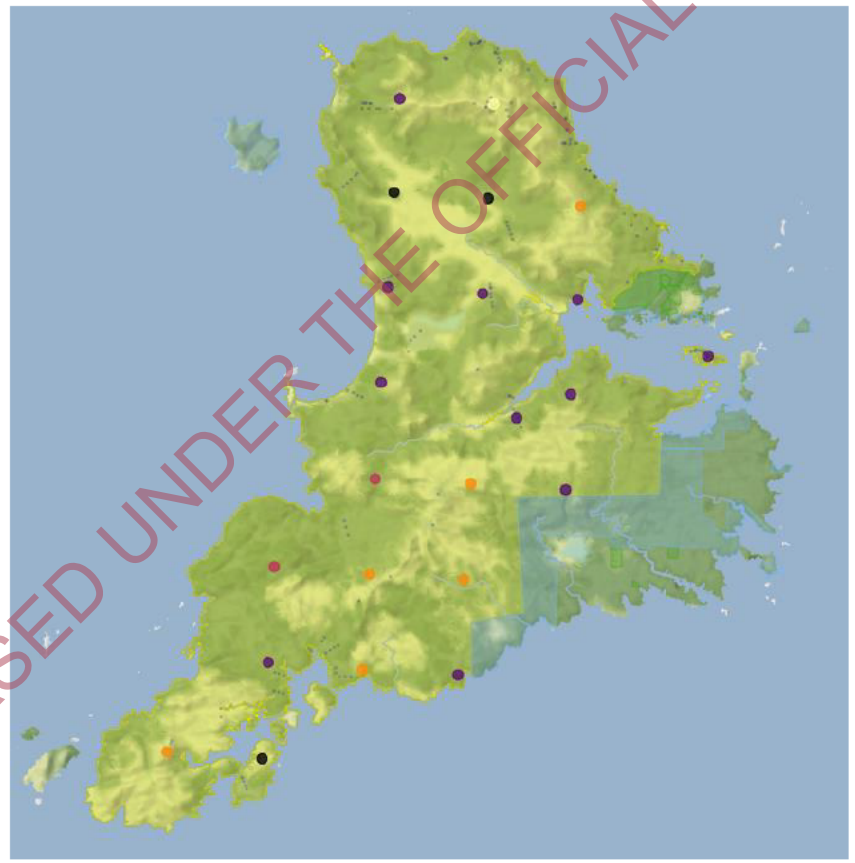
- Tier 1 is part of DOC's national monitoring system, begun in 2011
- It was designed for national state and trend reporting
- It may be able to detect big, consistent changes in common species or groups
- It cannot detect faint, local, or 'noisy' changes

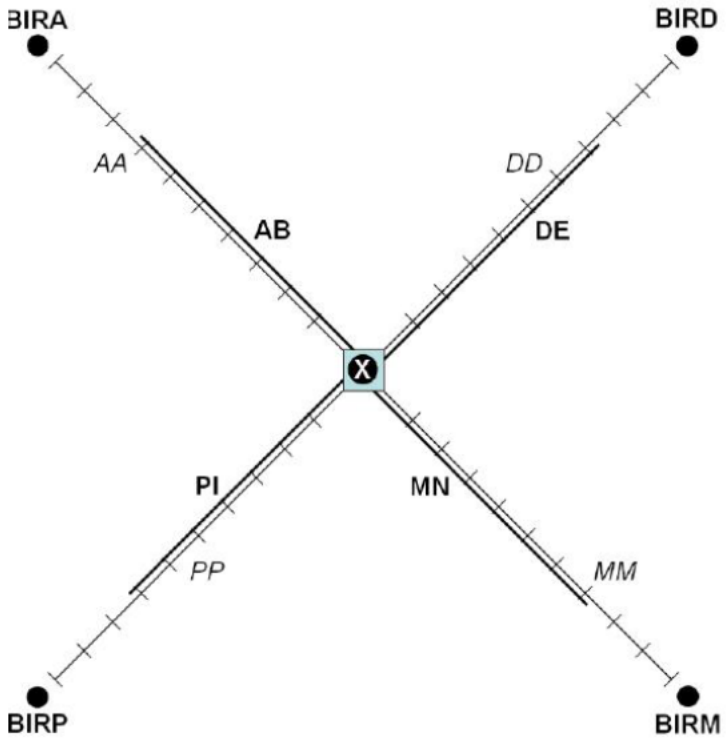
The three-tiered monitoring system design

National scale monitoring on Rakiura

- Tier 1 uses a grid of monitored sites, spaced 8km apart, each measured every 5 years
- There are 22 forest or shrubland sites in Rakiura National Park
- A handful are measured each year

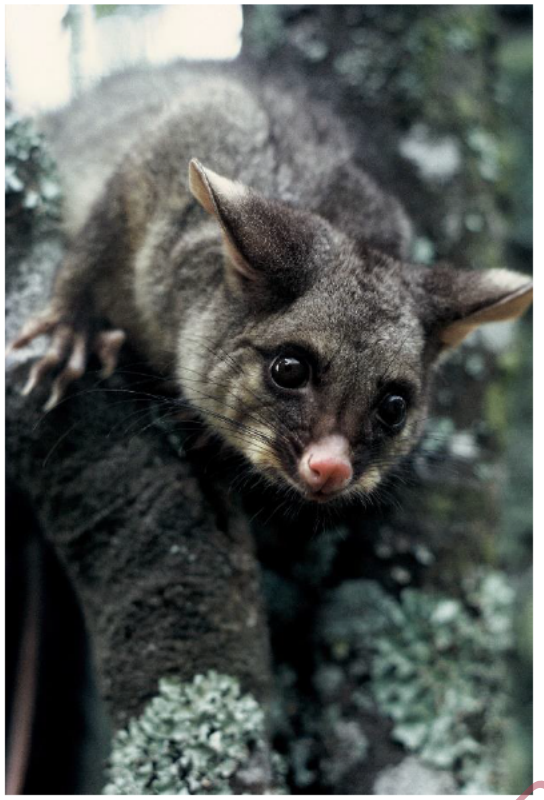


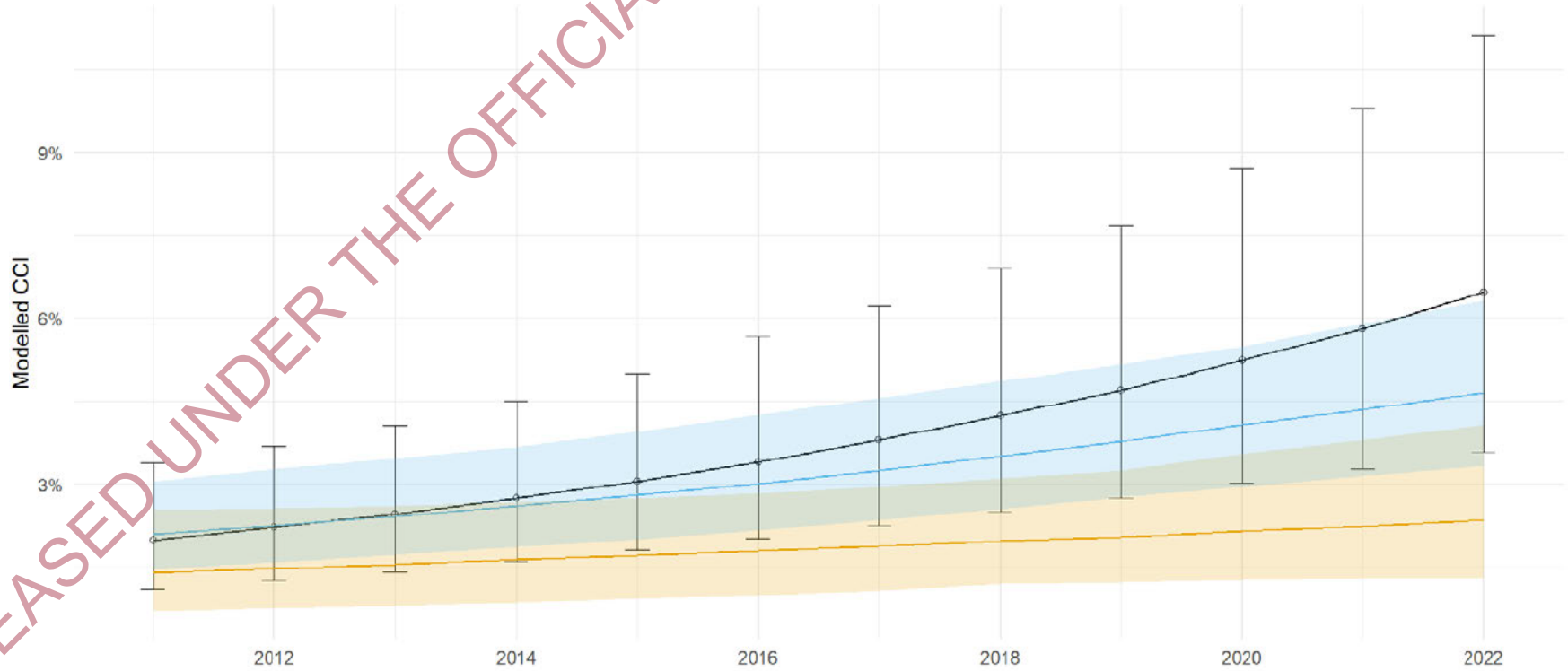




Tier 1 data about possums

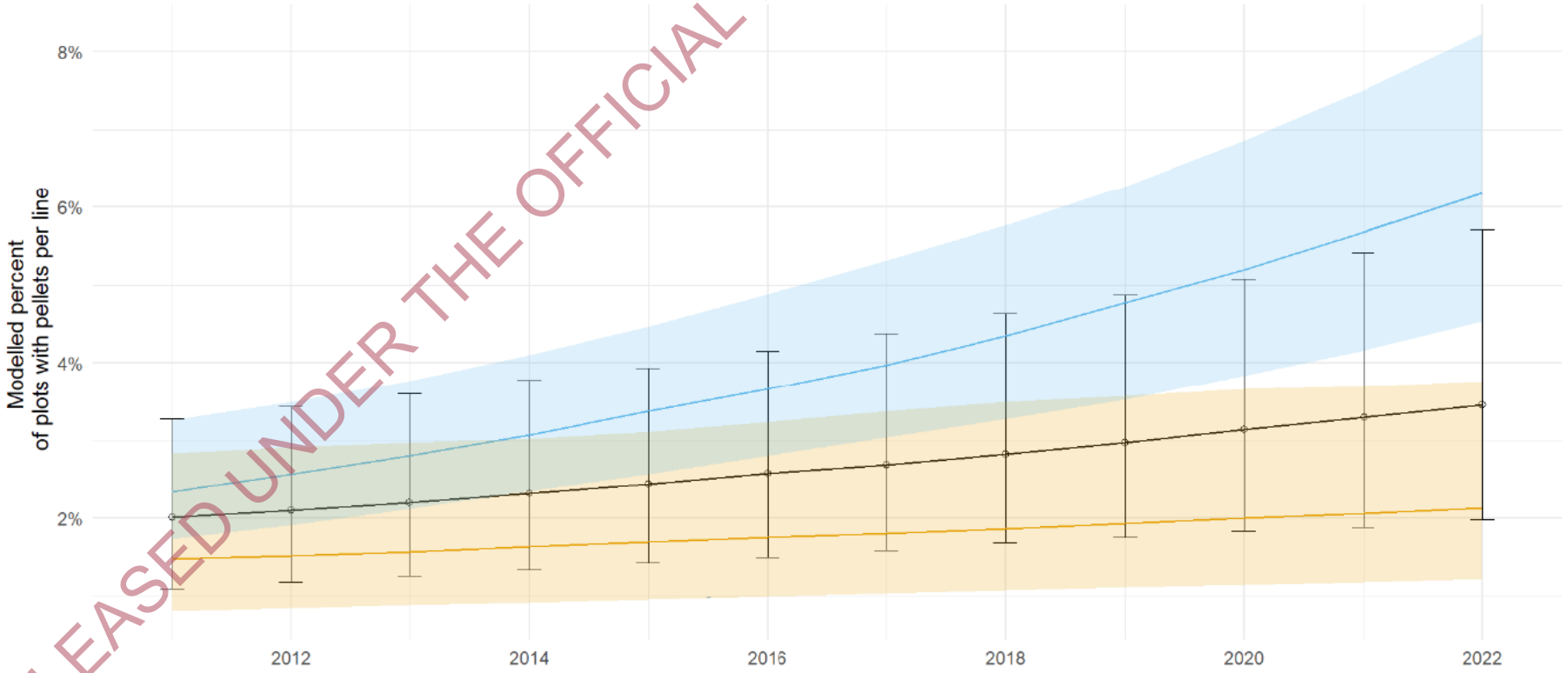
- Possum abundance, indicated by chew cards, may be increasing
- Staff on a recent visit to the island reported noticeable levels of browse





Tier 1 data about deer

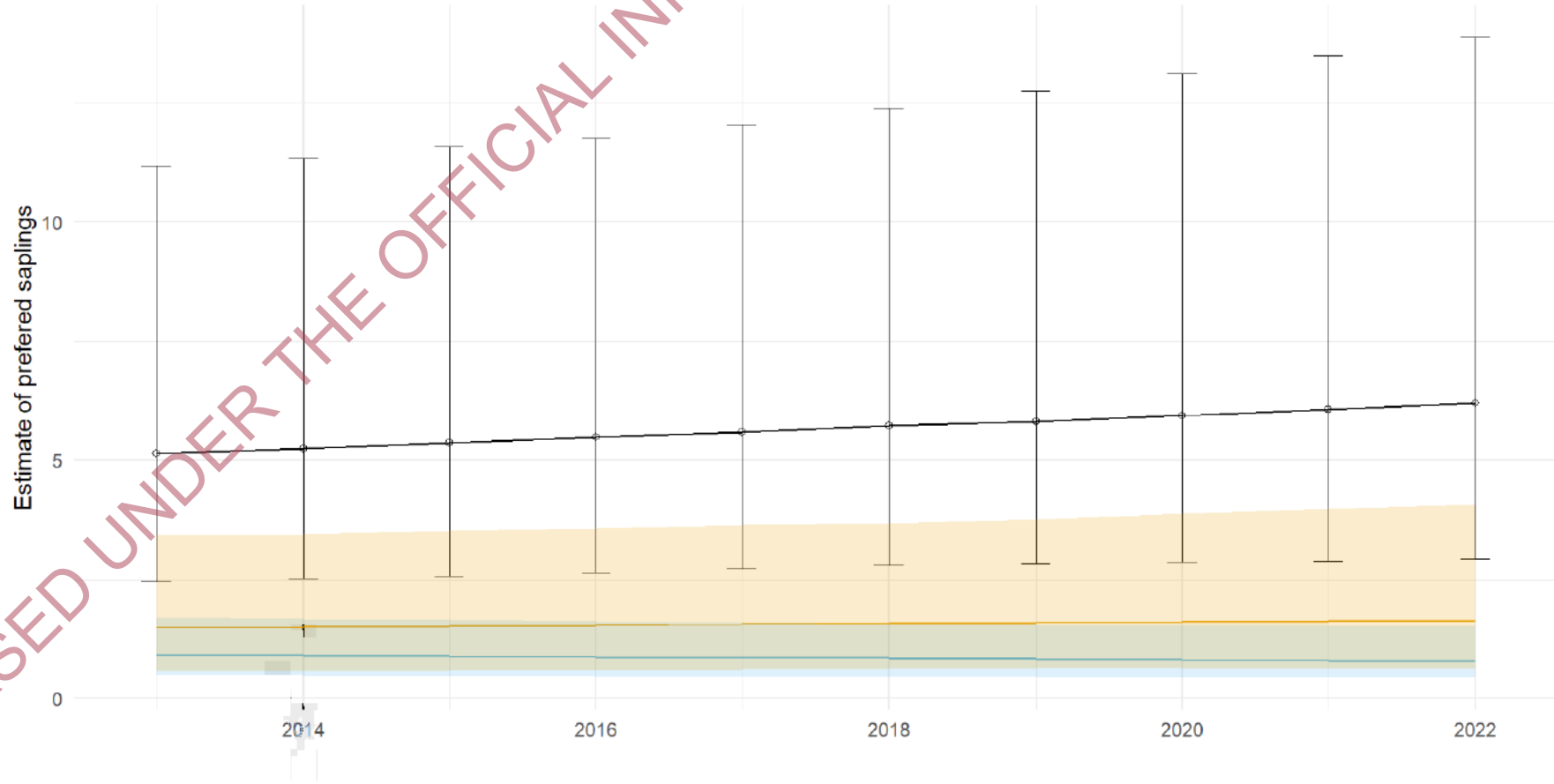
- Deer abundance indicated by pellet frequency, may be increasing slightly



Tier 1 data about saplings

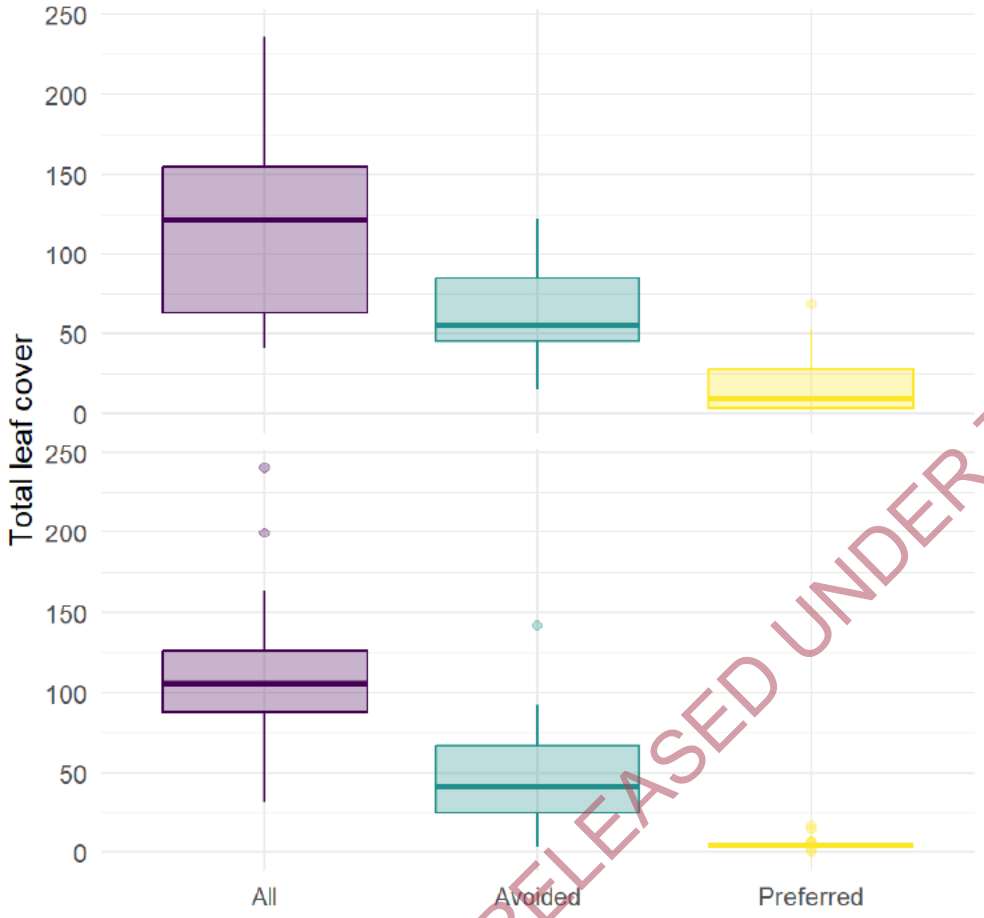
- There was no significant change in number of saplings counted over time
- The variation from plot to plot is large, especially for deer- preferred plants

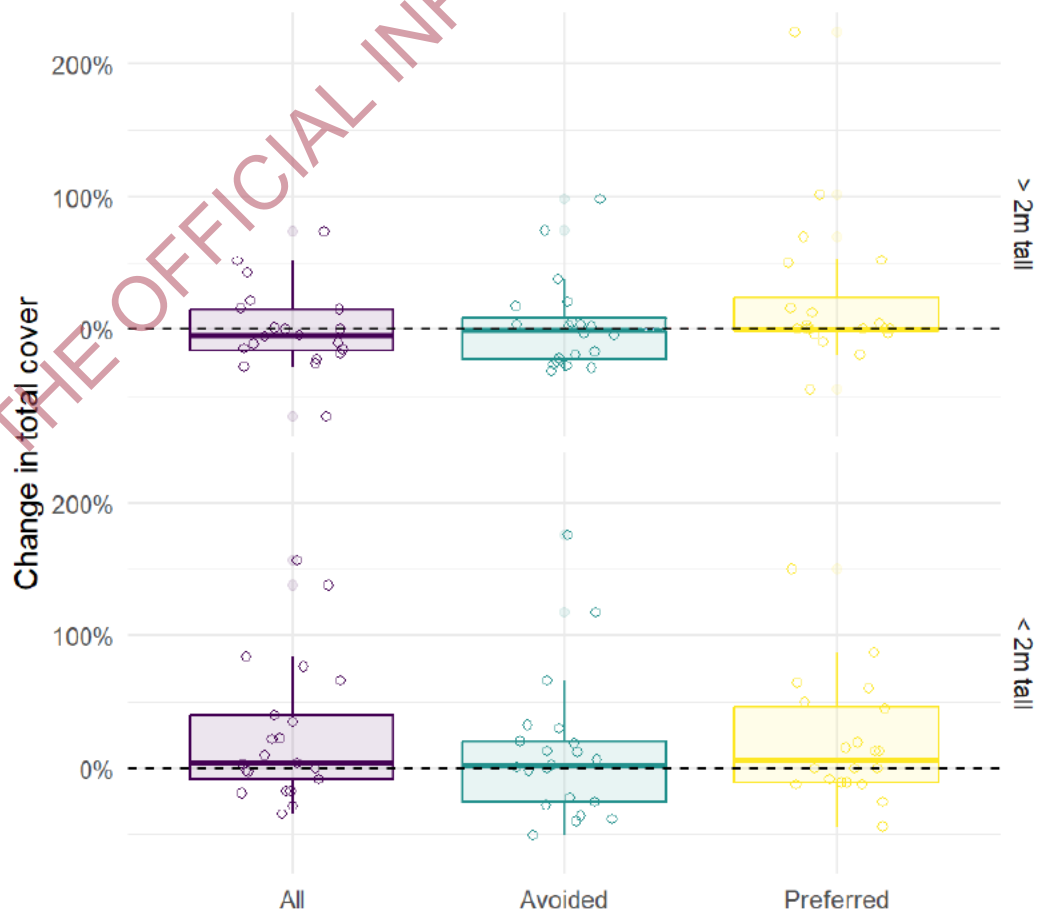
Often avoided plants are tough like dracophyllum and preferred plants are softer like kamahi



Tier 1 data about overall plant cover

- No evidence of a consistent change between the last two measurements: some increases, some decreases
- Same for the 'browse tier' as for the higher layers of the canopy





Comparison to previous reporting

Duncan (2010) used large, local datasets

Evidence from deer-free islands: Rakiura had lower abundance of preferred plant species

Evidence from exclosures: seedlings of plants that do better where deer are fenced out were generally declining across Rakiura, while those that do better outside fenced exclosures were generally increasing.

Deer had most impact on higher fertility sites with more preferred tree species.

Difference between a fenced and open site in lowland forest (s9(2)(g)(ii) 2024)

Future monitoring

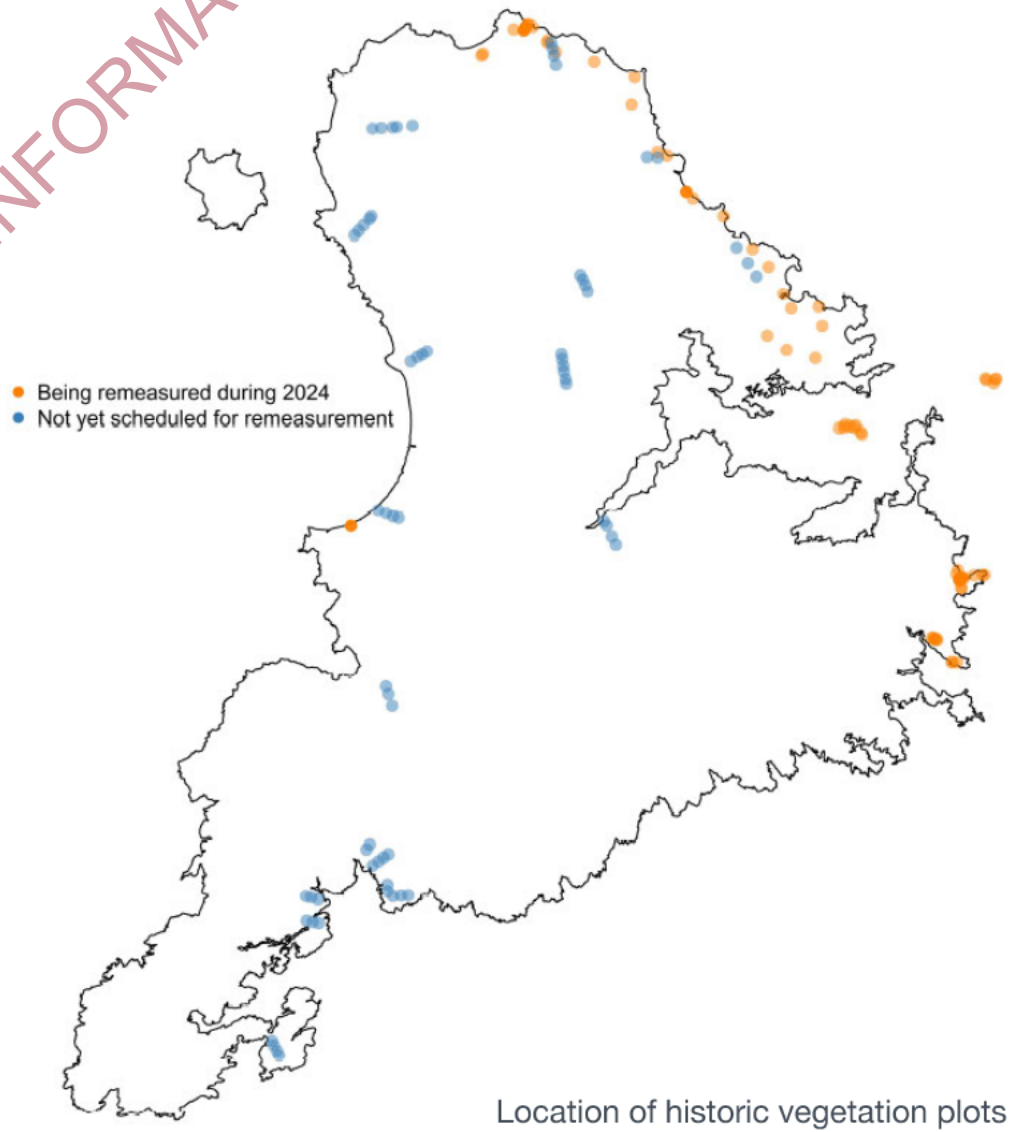
Review of monitoring activities

Manaaki Whenua Landcare Research were contracted to evaluate past monitoring and recommend future action

Past monitoring includes:

- Permanent vegetation plots
- Foliar browse index studies
- Tree seedling studies
- Deer pellet counts on transects
- Trap catch to monitor possums
- Bird call counts

Most was done from the 1970s to the 2000s



Location of historic vegetation plots

Local monitoring is needed

Recommendations from MWLR report

- Remeasuring vegetation plots in northern and southern forests (build on the current remeasurement of the eastern plots).
- Set up new vegetation plots on Codfish Island / Whenua Hou to provide a benchmark for Rakiura in the absence of all non-native mammals.
- Consider adding plots in successional communities to understand canopy-replacing processes with respect to deer and management.

Whenua Hou is a natural comparison to Rakiura

More monitoring recommendations

There is a large resource to build on

- Add on measurement of deer, possum and birds at vegetation plots using a similar approach as is used for Tier 1.
- Locate, enter and explore the data for historical five-minute bird count (5MBC) monitoring from 1998–2000 into the DOC 5MBC database.

Titipounamu and other forest birds may be in decline

Summary

Reporting on Rakiura forest health requires local-scale monitoring

- There is a large resource to build on
- Monitoring should include plants and animals

With only national-scale monitoring, we can only detect strong signals

- Possum and deer populations may be increasing
- Vegetation change was not detected, but may be occurring in specific habitats or locations

Staff report marked browser impact in some places

Staff on a recent visit noticed heavy possum browse (s9(2)(g)(ii) 2024)

Thanks!