

The Aotea Bird Count, 2020 edition

George Perry

Report compiled by Quinn Asena

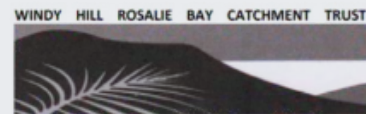
University of Auckland | Te Whare Wānanga o Tāmaki Makaura



Acknowledgments



- Big thanks to all the volunteers!
- Support of members of Ngāti Rehua Ngātiwai ki Aotea, the Department of Conservation – Te Papa Atawhai, , Windy Hill Sanctuary, Glenfern Sanctuary, OME, Ecology Vision, and the. Okiwi Community Ecology Project
- Thanks also to the hard work from the 'technical team', Thomas Daly, Emma Waterhouse, Kate Waterhouse, Judy Gilbert, John Ogden, Jacqueline Beggs and Shanti Morgan for organising the Aotea Bird Count.
- Funding of this report from the Auckland Council and support for their staff.



The broader context



130 species of 'land' birds prior to human arrival in NZ, of which nearly 50% are now extinct



Possible contribution

Certain contribution

From: Tennyson & Martin. 2006.
Extinct Birds of New Zealand

Sadly, Aotea has not been immune



- Koreke/New Zealand quail
- Tūturuatu/shore plover
- Hihi / stitchbird
- NI Kōkako
- Saddleback / tiēke
- Pīpipi / brown creeper
- Pōpokatea / whitehead
- Titipounamu / rifleman
- Kākāriki / yellow-crowned parakeet
- Black-bellied storm petrel
- White-headed petrel
- Kārearea / NZ falcon
- Korimako / bellbird
- Miromiro / tomtit
- Pāteke / brown teal

ART. XII.—*Notes on the Birds of the Great Barrier Island.* By Captain F. W. HUTTON, F.G.S.

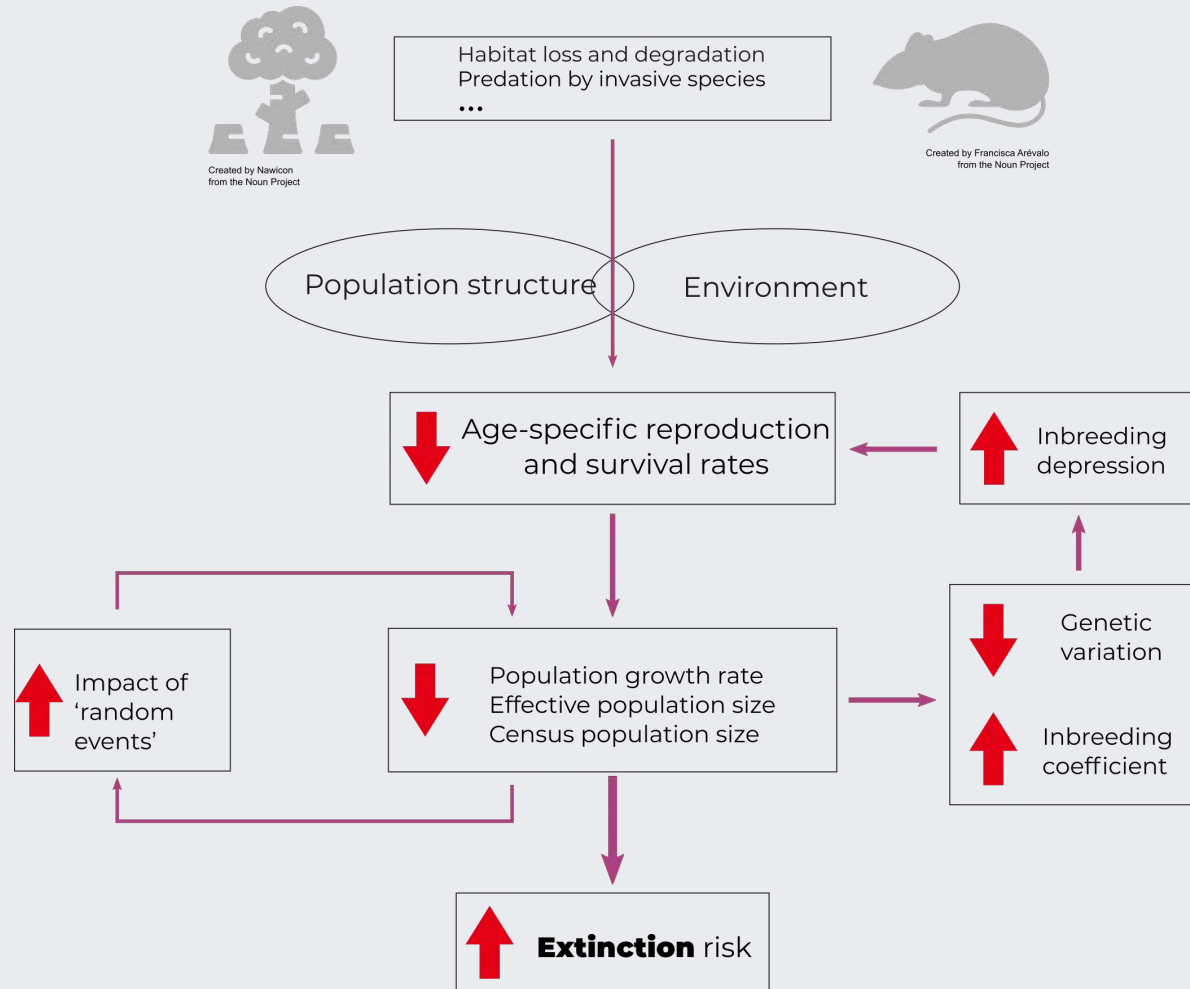
[Read before the Auckland Institute, July 6, 1868.]

HAVING spent two months, this summer, in exploring the Great Barrier Island, I am enabled to lay before the Society, what I consider to be a tolerably complete list of the birds found there.

I have given the English names of those birds that I know to possess one, but many, of course, are known by their scientific names only. The native names were obtained from Maories on the Island.

- * 1. *Hieracidea Novæ Zelandiæ.* Sparrow-Hawk.
- * 2. *Circus Gouldi.* Hawk. Common.
- * 3. *Athene Novæ Zelandiæ.* More-Pork. Heruru. Kou-kou.
4. *Halcyon vagans.* King-fisher.
- * 5. *Prothemadera Novæ Zelandiæ.* Tui. Very abundant.
- * 6. *Pogonornis cincta.* Ihi. Not uncommon.
- * 7. *Anthornis melanura.* Bell-bird. Korimoko. Abundant.
- * 8. *Acanthisitta chloris.* Miru-miru. At Harataonga.
- * 9. *Mohoua albicilla.* Popokotea. Very common.

The perils facing rare species



Citizen science



scientific work undertaken by members of the general public, often in collaboration with or under the direction of professional scientists and scientific institutions. - OED (entered in 2014).



The value of citizen science

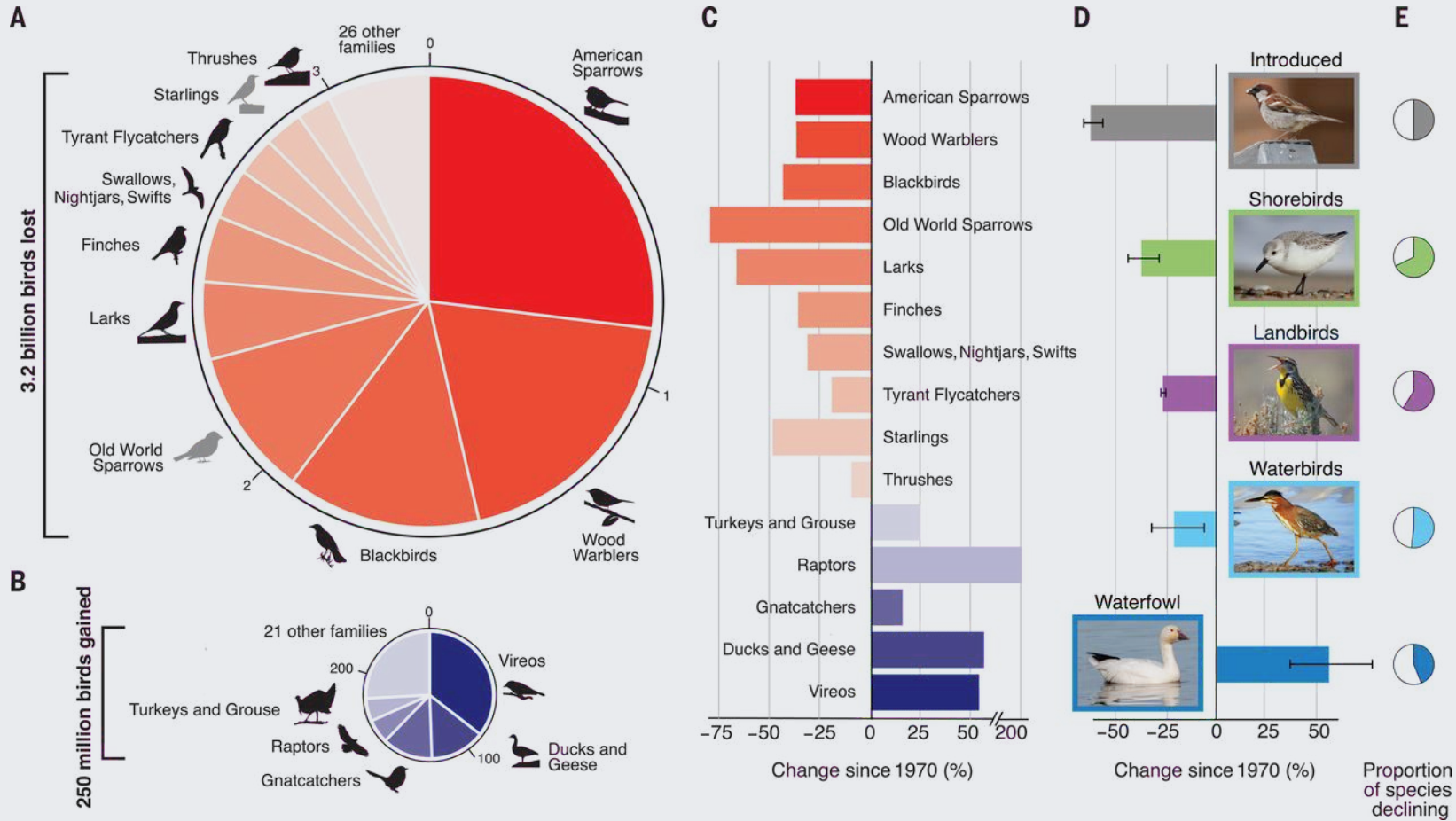
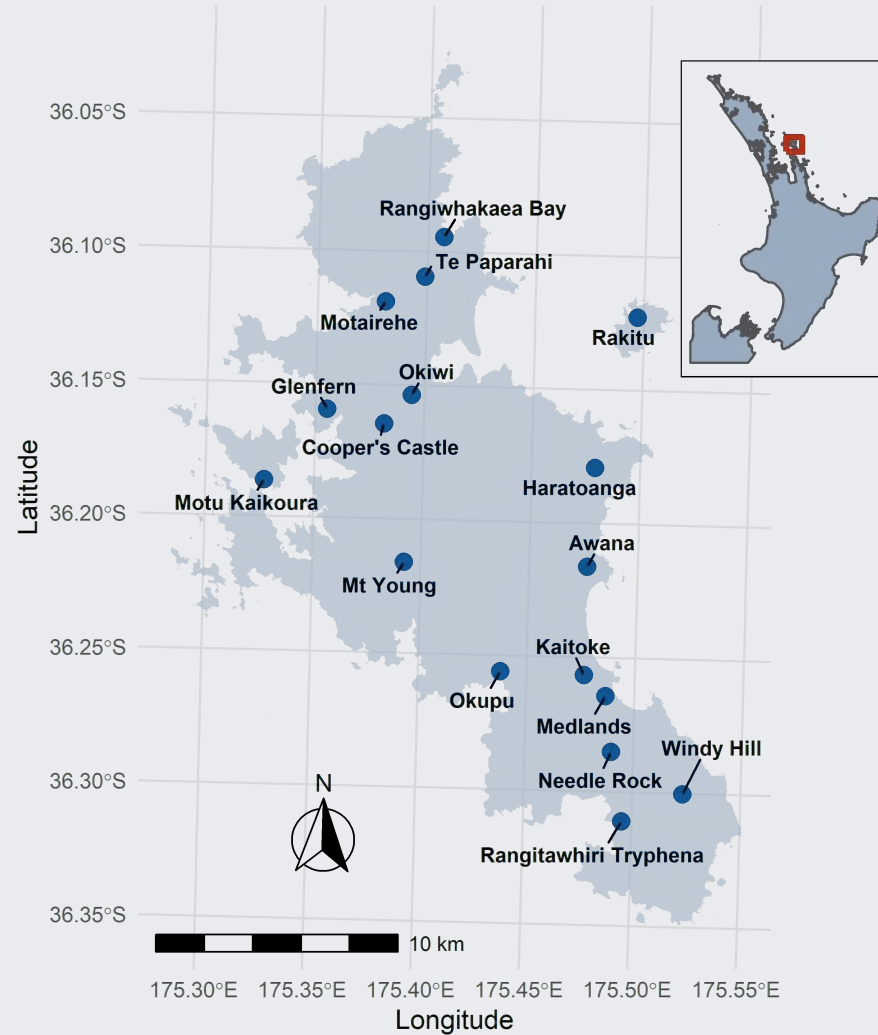


Image: Rosenberg et al. 2019. *Science*

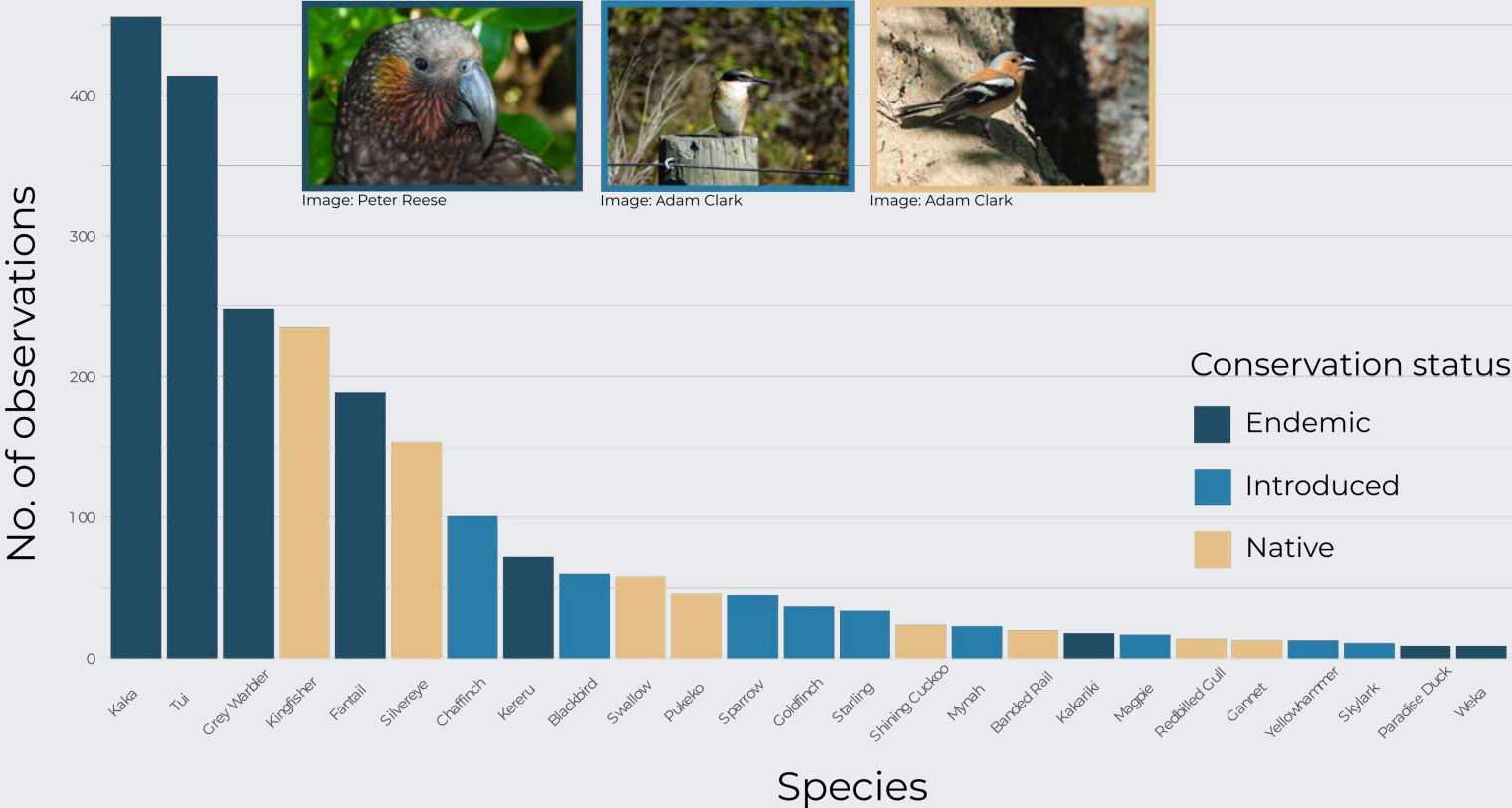


Image credit: Bernard Spragg

Survey locations



Most frequently observed species



What does this mean?



- Need to bear in mind that observation and abundance are **not** the same
- Some species are inherently more obvious ('detectable') than others!



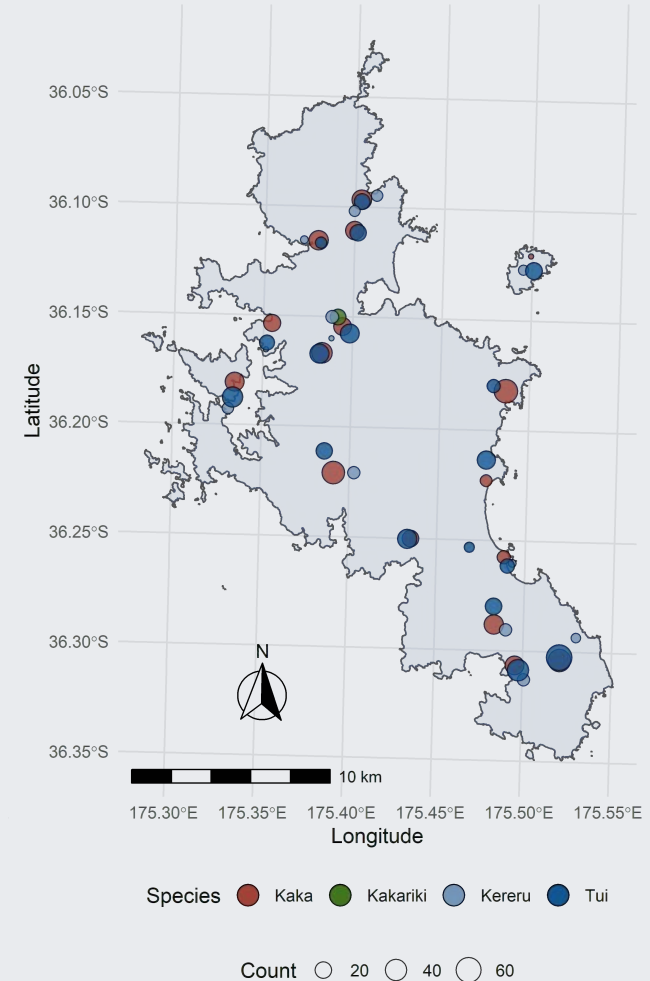
Image credits: Guy Macindoe

Patterns of abundance



Most observations at **Motu Kaikoura** ($n = 235$), then Mt Young and Windy Hill (187 and 185)

Average no. of observations = 140

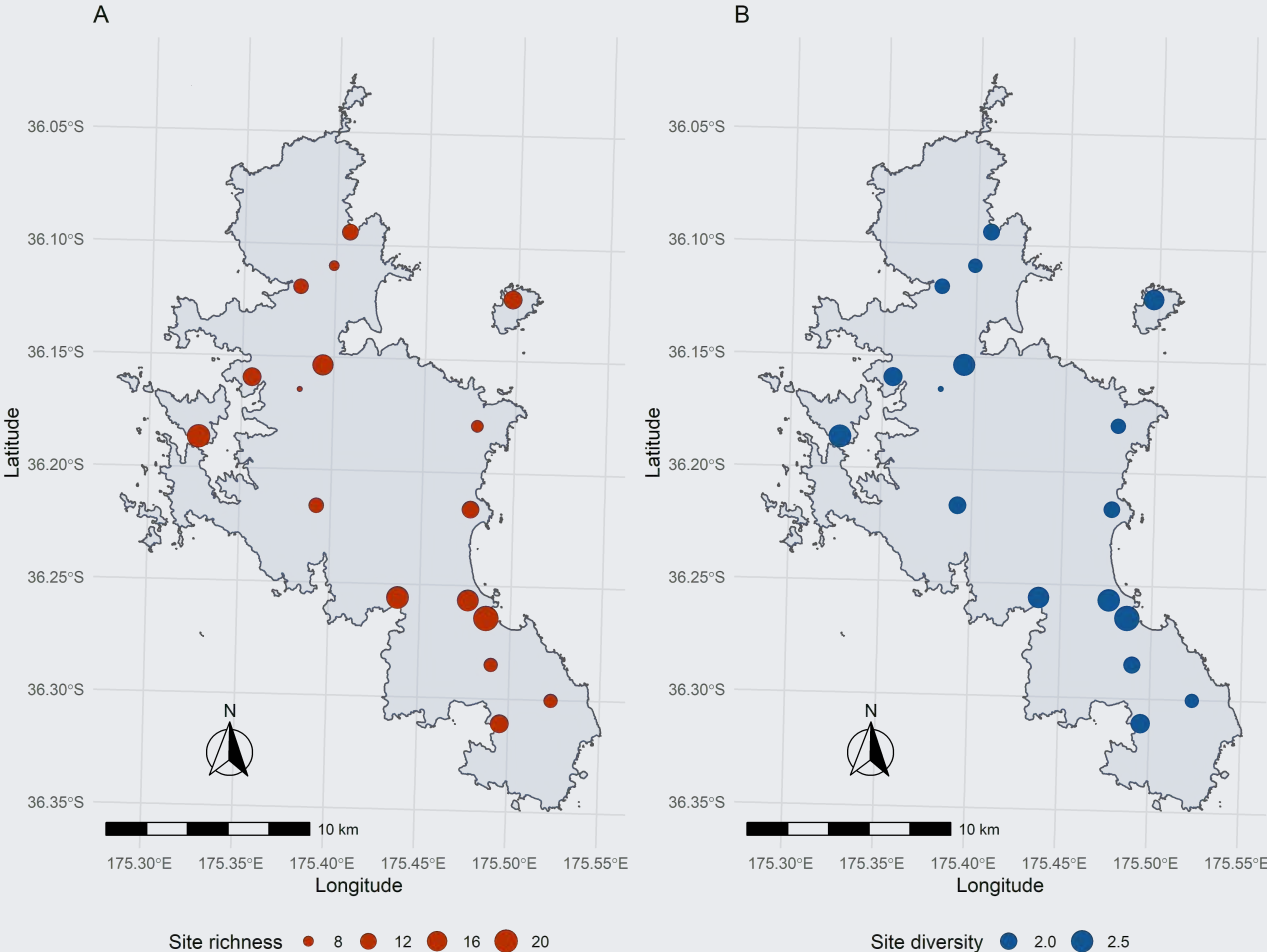


Richness & diversity

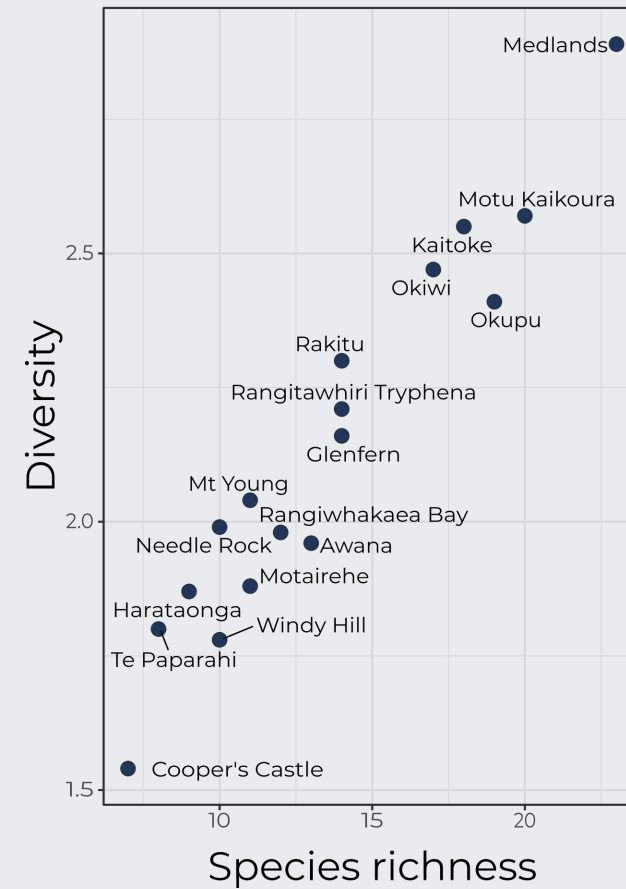
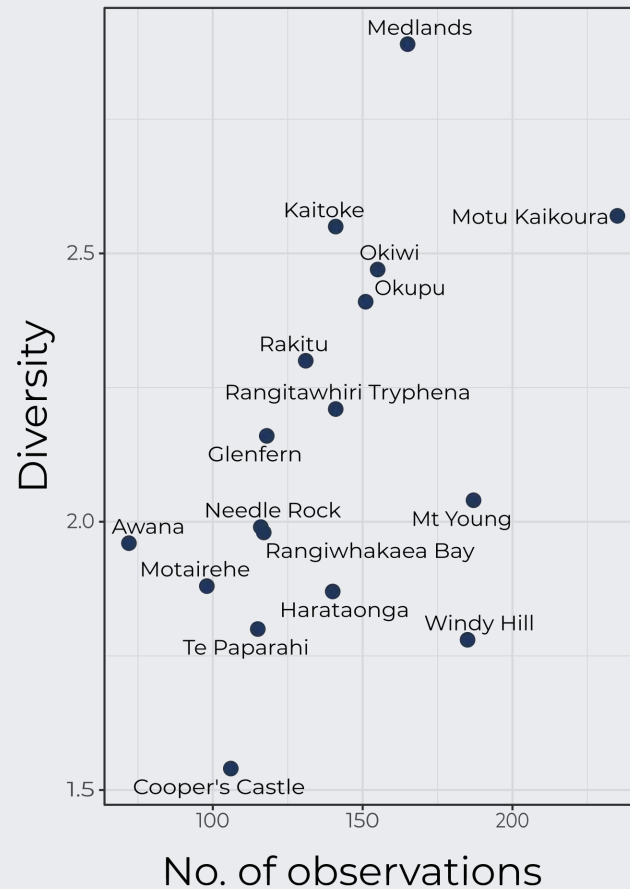
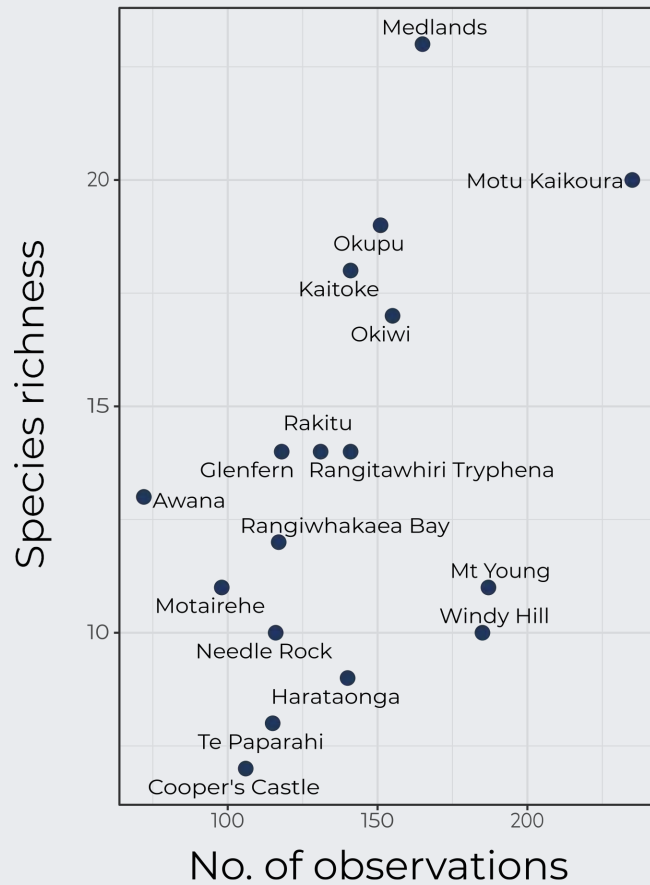


- **Richness** is the total number of species (how many colours of marbles?)
- **Diversity** is the distribution of species across individuals (if you pick a marble at random, can you guess the colour?)

Patterns of richness & diversity



Observation, richness & diversity

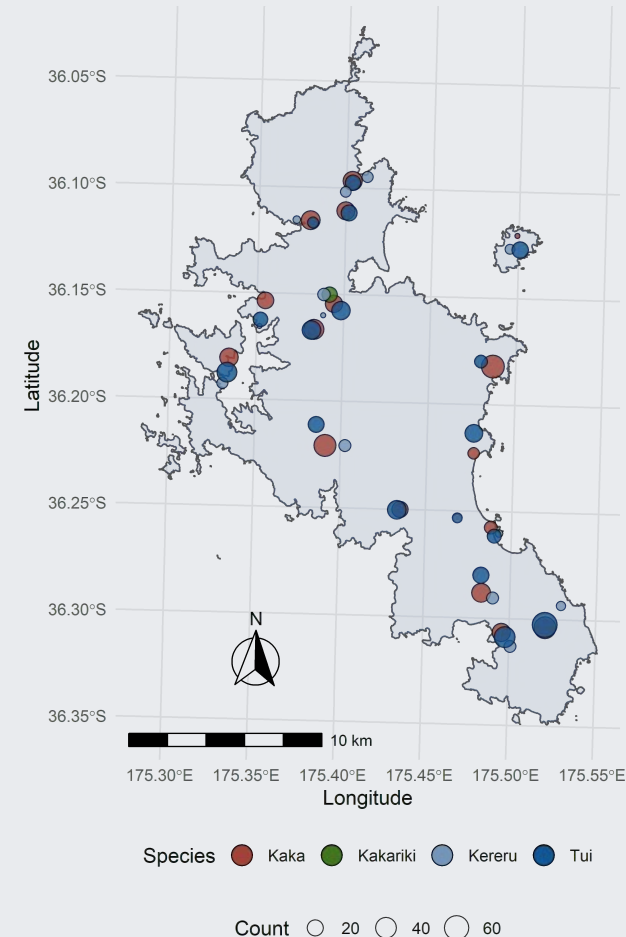


Kākāriki, kākā, tūi and kererū



Most observations:

- tūi at Windy Hill ($n = 64$)
- kākā at Mt Young ($n = 47$)
- kākāriki and kererū at Okiwi ($n = 18$ & 10)



Kākāriki heartening!

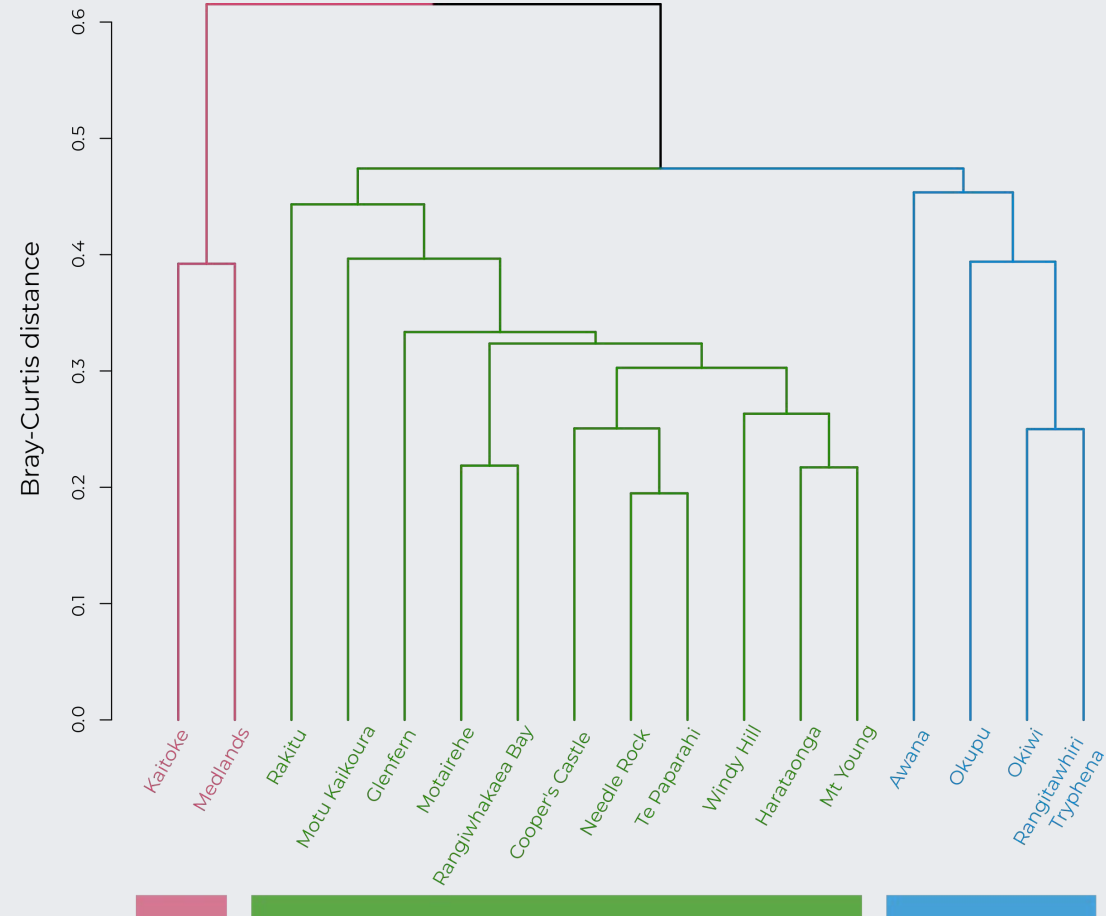


Intensive community monitoring and trapping at Okiwi bearing fruit!



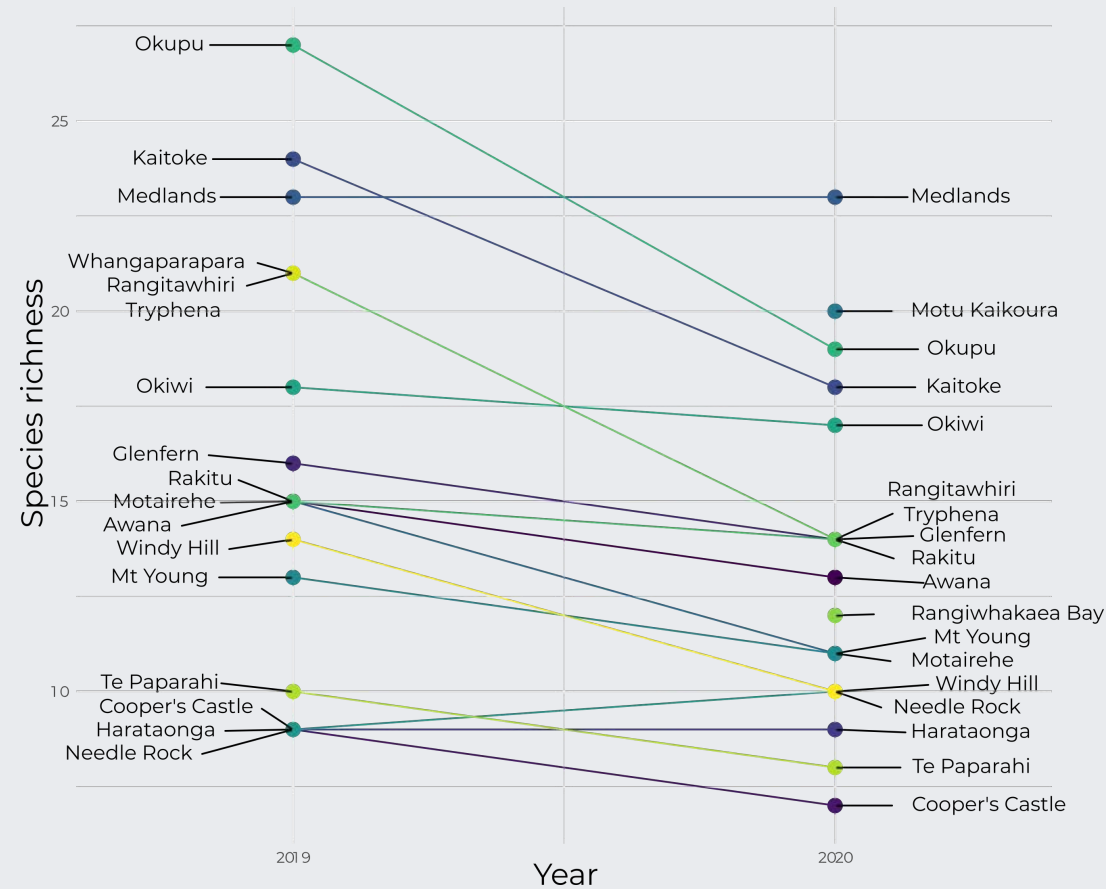
Image: Judi Lapsley Miller

Site relationships



Three clusters of sites loosely aligned to habitat: kākā, tūī, pukeko

'Change' in richness



Need to be cautious interpreting such short-term data

Bear in mind...



All surveys suffer from biases; in this case

1. **Location** bias: trade-offs between accessibility and habitat representativeness
2. **Detection** bias: birds species are not all equally likely to be observed due to size, sound and behavioural differences.
3. **Identification** bias: not all bird species are equally identifiable visually or audibly.

Archiving & reproducibility



- The value of these datasets will only grow with time!
 - both the data and the scripts are archived in an [online repository](#)
- Can contribute the data to larger citizen science projects such as [NZ eBird](#) or the [NZ bird atlas](#)?



In a nutshell



- The **most frequently observed** species on the island during the survey were kākā, tūī, riroriro, kōtare, and piwakawaka
- The number of individuals observed among sites ranged between [72, 235]. Species richness had a range of [7, 23], and species diversity ranged between [1.54, 2.89]
- The **highest species richness and diversity** were found at **Motu Kaikoura and Medlands**, while the lowest values were at Cooper's Castle and Te Paparahi.

Questions? Comments?

