

Great Kererū Count 2021

Annual Report



Kererū in flight

Photo credit: Tony Stoddard, Kererū Discovery

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Executive Summary

In 2021, over 12,000 records were submitted to the Great Kererū Count, totalling 24,562 kererū counted– the greatest number to date, representing a seventeen percent increase in sightings from last year and a seventy-seven percent increase from 2019. The increase in sightings was reflected in a nationwide perception of kererū becoming more abundant. Urban sightings increased, particularly in Auckland city which recorded 28% of the total this year, compared to seventeen percent in 2020. Nonetheless, districts which recorded the greatest number of kereru per capita were all in the South Island: Clutha, Dunedin, Westland and Buller all recorded more than 25 kererū per 1000 inhabitants. Kowhai remained the plant where kererū were most likely to be seen feeding (over one thousands observations this year). This year's count adds to growing evidence that kererū are becoming more visible in the places where most people live and work, and that there are annual fluctuations in how they distribute themselves across the landscape, quite likely in response to food availability. Further analysis will be conducted in the months to come. Interactive maps of this year's observations and all previous reports can be viewed under the Resources tab of <https://www.greatkererucount.nz/>

About the Great Kererū Count

The Great Kererū Count (GKC) was set up to gain a better understanding of kererū numbers and distribution across New Zealand and to increase public appreciation of the beauty and ecological importance of this native bird. The Great Kererū Count is an annual citizen science project, the more people who participate, the better the understanding on how kererū are doing across the country. The count is organised by Kererū Discovery Trust and the New Zealand Urban Wildlife Trust. Over a number of years, scientists from Victoria University of Wellington and Lincoln University will use data from the Great Kererū Count to build a more accurate picture of kererū numbers, distribution as well as key kererū behaviours. This will help us understand how best to promote healthy and abundant populations of kererū, which in turn will benefit the natural regeneration processes of native forests.

The Great Kererū Count 2019 took place from Friday 20th Sept – Sunday 29th Sept, 2019.

The Great Kererū Count 2020 took place from Friday 18th Sept – Sunday 27th Sept, 2020.

The Great Kererū Count 2021 took place from Friday 17th Sept – Sunday 26th Sept, 2021.

Participants could add observation via one of three methods:

- 1) via a webform, with no log-in required (called a “Quick Observation”)
- 2) via the i-Naturalist NZ website. A user login is required, once registered users can keep track of all their natural history observations and photographs, and share questions and answers with a community naturalists.
- 3) via the i-Naturalist app for iPhone or Android, which adds observations to i-Naturalist NZ on the go (time and location will be captured automatically by the app).

Regardless of data entry method, all data (excluding personal information) is archived and publically available for download, via the i-Naturalist NZ platform.

Table 1. The raw numbers: national overview

| | 2018 | 2019 | 2020 | 2021 |
|--|--------|--------|--------|--------|
| Number of records | 8,879 | 6,794 | 10,279 | 12,002 |
| Total number of birds recorded | 18,981 | 14,287 | 21,509 | 24,562 |
| Number of records recording a presence | 8,788 | 6,540 | 10,110 | 11,897 |
| Number of records recording absence | 91 | 254 | 169 | 105 |
| Average number of birds per record of presence | 2.16 | 2.10 | 2.09 | 2.05 |
| Maximum number of birds in one record | 200 | 107 | 156 | 136 |
| Number of records noting 30 or more birds in one event | 22 | 14 | 33 | 34 |
| Number of records submitted via the GKC front page | 7,632 | 5,964 | 9,235 | 10,687 |
| Number of records submitted directly to i-Naturalist | 1,247 | 830 | 1,044 | 1,315 |
| Number of i-Naturalist NZ participants (unique user-ids) | 389 | 199 | 207 | 247 |
| Average number of records per i-Naturalist NZ participant | 3.2 | 4.2 | 5.0 | 5.3 |
| Number of records that could not be assigned to a region (e.g. out at sea) | 153 | 70 | 128 | 147 |
| Average opinion of change over previous 3 years | +0.37 | +0.20 | +0.42 | +0.39 |

Based on data from the Great Kererū Count 2021, 29 Sept.

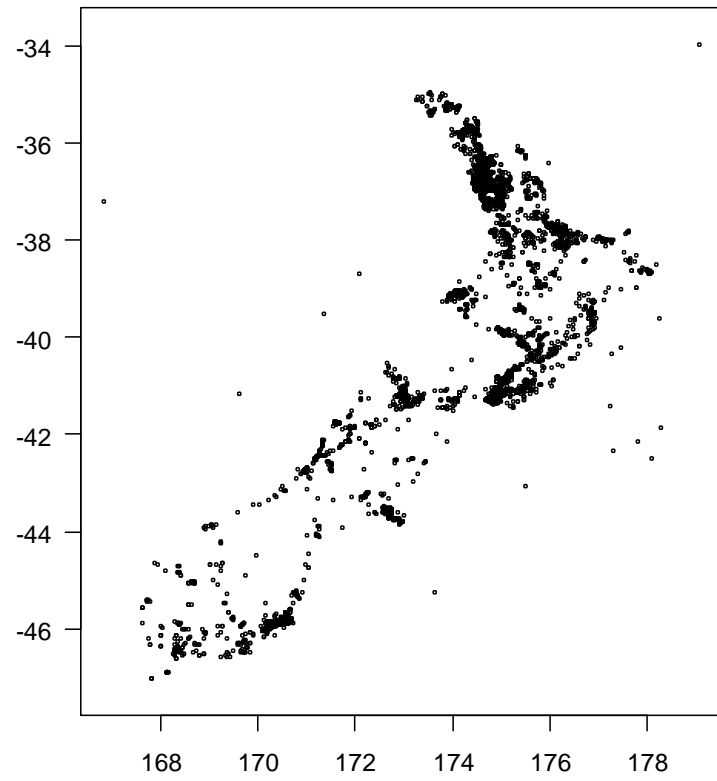
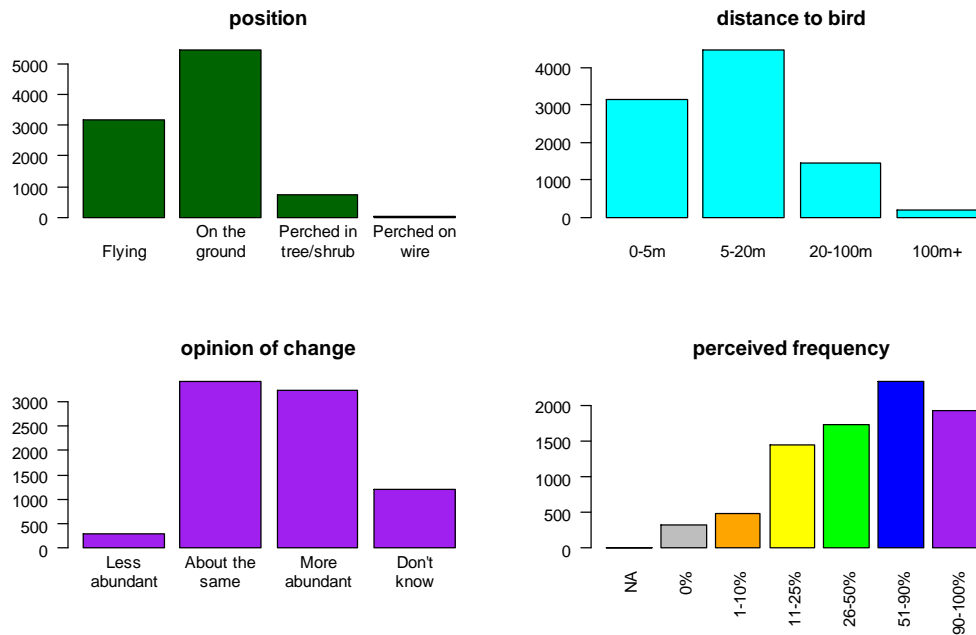


Fig 1. Distribution of records submitted in 2021 GKC (prior to trimming to coastline)

2020



2021

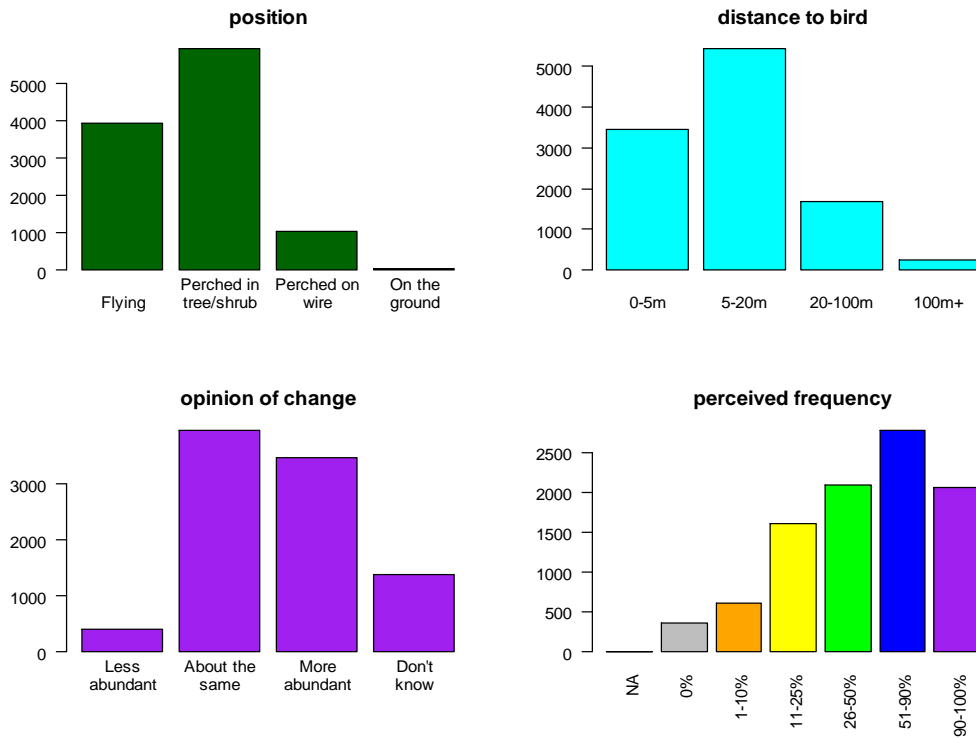


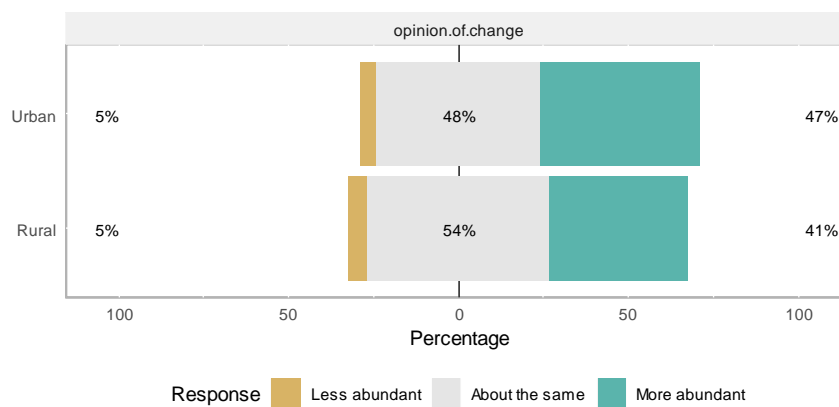
Fig 2. A) Position where birds was first seen B) distance to bird, when first seen C) Opinion of change in abundance over the past three years in the area surveyed and D) how frequently kererū have been seen in the surveyed area, previously. 2020 (top) compared to 2021 (bottom).

Table 2. Opinion of change (over the past three years at the location surveyed)

| | 2018 | 2019 | 2020 | 2021 |
|----------------|--------------|--------------|--------------|--------------|
| Less abundant | 408 (6.2%) | 677 (13.1%) | 300 (3.7%) | 394 (4.3%) |
| About the same | 3238 (49.4%) | 2712 (52.6%) | 3412 (41.9%) | 3956 (43.0%) |
| More abundant | 2832 (43.2%) | 1675 (32.5%) | 3219 (39.5%) | 3467 (37.7%) |
| Don't know | 79 (1.2%) | 92 (1.8%) | 1214 (14.9%) | 1381 (15.0%) |
| Average: | +0.37 | +0.20 | +0.42 | +0.39 |

The general impression in 2021 continues to be that kereru are equally abundant (43%) or more abundant (37.7%) this year, compared to the past few years.

2021



2020

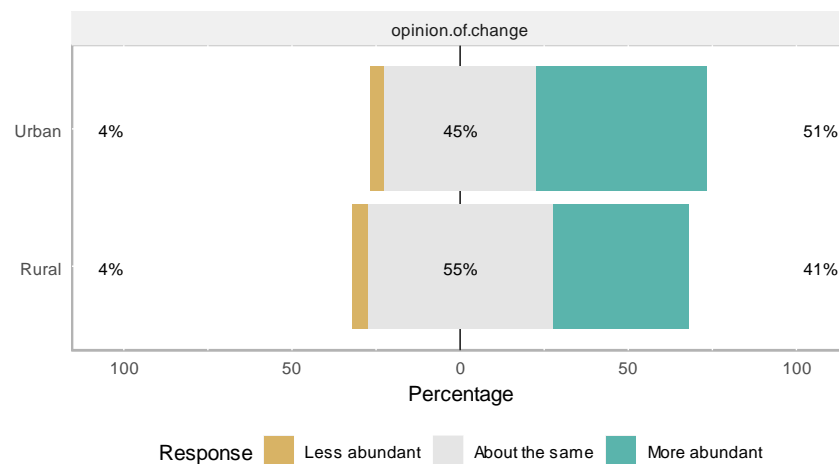


Fig 3. Opinion of change, comparing urban vs rural opinions. Top = 2021, Bottom = 2020.

Table 3a. Number of records, separated according to general habitat (urban vs rural) and type of place where the records were made, in 2018 (top) through to 2021 (bottom). Users assessed the habitat-type and urban/rural categorisation of their own record.

2021 saw a continued shift towards a greater proportion of records from urban areas (61.5%) compared to rural (38.5%). From 2018 to 2020, the records were 58%, 55% and 59% urban respectively. See also the rural:urban ratios. Gardens and streets account for the majority of observations.

| 2018 | Forest | Garden | Paddock | Park | School | Street | Other | Total |
|--------------------------|--------|--------|---------|-------|--------|--------|-------|-------|
| Rural | 295 | 1469 | 399 | 82 | 27 | 284 | 436 | 2992 |
| Urban | 95 | 1750 | 10 | 266 | 65 | 1426 | 540 | 4152 |
| Rural:Urban Ratio | 3.105 | 0.839 | 39.90 | 0.308 | 0.415 | 0.199 | 0.807 | 0.721 |
| % of total | 5.5% | 45.1% | 5.7% | 4.9% | 1.3% | 23.9% | 13.7% | 100% |

| 2019 | Forest | Garden | Paddock | Park | School | Street | Other | Total |
|--------------------------|--------|--------|---------|-------|--------|--------|-------|-------|
| Rural | 362 | 1161 | 350 | 71 | 22 | 225 | 341 | 2650 |
| Urban | 126 | 1334 | 15 | 217 | 36 | 1011 | 373 | 3255 |
| Rural:Urban Ratio | 2.873 | 0.870 | 23.33 | 0.327 | 0.611 | 0.223 | 0.914 | 0.813 |
| % of total | 8.7% | 44.3% | 6.3% | 5.1% | 1.0% | 21.9% | 12.7% | 100% |

| 2020 | Forest | Garden | Paddock | Park | School | Street | Other | Total |
|--------------------------|--------|--------|---------|-------|--------|--------|-------|-------|
| Rural | 461 | 1673 | 424 | 128 | 19 | 358 | 491 | 3734 |
| Urban | 137 | 2150 | 13 | 359 | 69 | 1684 | 728 | 5393 |
| Rural:Urban Ratio | 3.365 | 0.778 | 32.62 | 0.357 | 0.275 | 0.213 | 0.674 | 0.692 |
| % of total | 6.6% | 41.9% | 4.8% | 5.3% | 1.0% | 22.4% | 13.4% | 100% |

| 2021 | Forest | Garden | Paddock | Park | School | Street | Other | Total |
|--------------------------|--------|--------|---------|-------|--------|--------|-------|-------|
| Rural | 592 | 1831 | 481 | 123 | 18 | 515 | 446 | 4146 |
| Urban | 191 | 2637 | 10 | 383 | 89 | 2064 | 811 | 6450 |
| Rural:Urban Ratio | 3.10 | 0.69 | 48.10 | 0.321 | 0.202 | 0.250 | 0.550 | 0.643 |
| % of total | 7.7% | 43.8% | 4.8% | 5.0% | 1.0% | 25.3% | 12.3% | 100% |

Table 3b. Average number of kererū per record in 2018 (top) through to 2021 (bottom), calculated according to general habitat (urban vs rural) and the type of place where records were made. Values are mean number of kererū per record. Rural settings are more likely to observe multiple kererū in one record.

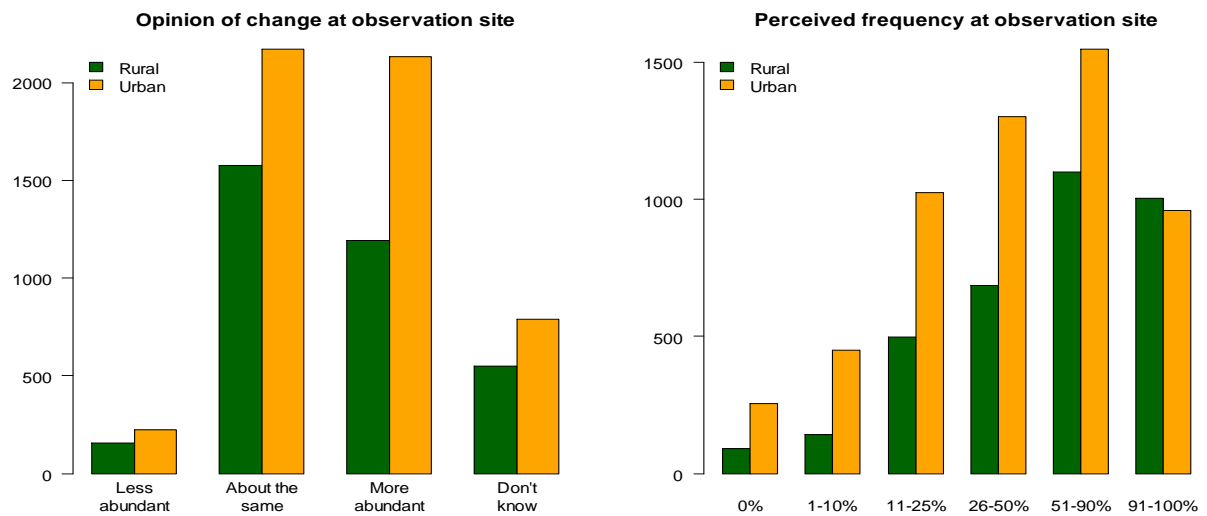
| 2018 | Forest | Garden | Paddock | Park | School | Street | Other | Average |
|--------------|--------|--------|---------|------|--------|--------|-------|---------|
| Rural | 2.53 | 2.23 | NA | 2.61 | 1.96 | 2.44 | 2.42 | 2.57 |
| Urban | 1.67 | 1.66 | NA | 2.58 | 1.60 | 1.75 | 1.78 | 1.78 |

| 2019 | Forest | Garden | Paddock | Park | School | Street | Other | Average |
|--------------|--------|--------|---------|------|--------|--------|-------|---------|
| Rural | 2.77 | 2.28 | 3.48 | 4.08 | 1.91 | 2.40 | 3.23 | 2.67 |
| Urban | 1.87 | 1.73 | 0.83 | 1.62 | 1.64 | 1.71 | 1.62 | 1.71 |

| 2020 | Forest | Garden | Paddock | Park | School | Street | Other | Average |
|--------------|--------|--------|---------|------|--------|--------|-------|---------|
| Rural | 2.69 | 2.20 | 4.25 | 3.62 | 3.05 | 2.13 | 2.38 | 2.62 |
| Urban | 2.02 | 1.69 | 2.84 | 2.26 | 1.54 | 1.83 | 1.62 | 1.76 |

| 2021 | Forest | Garden | Paddock | Park | School | Street | Other | Average |
|--------------|--------|--------|---------|------|--------|--------|-------|---------|
| Rural | 2.43 | 2.22 | 3.26 | 4.43 | 1.17 | 2.01 | 3.17 | 2.53 |
| Urban | 1.93 | 1.69 | 1.80 | 1.93 | 1.39 | 1.81 | 1.84 | 1.76 |

2021



2020

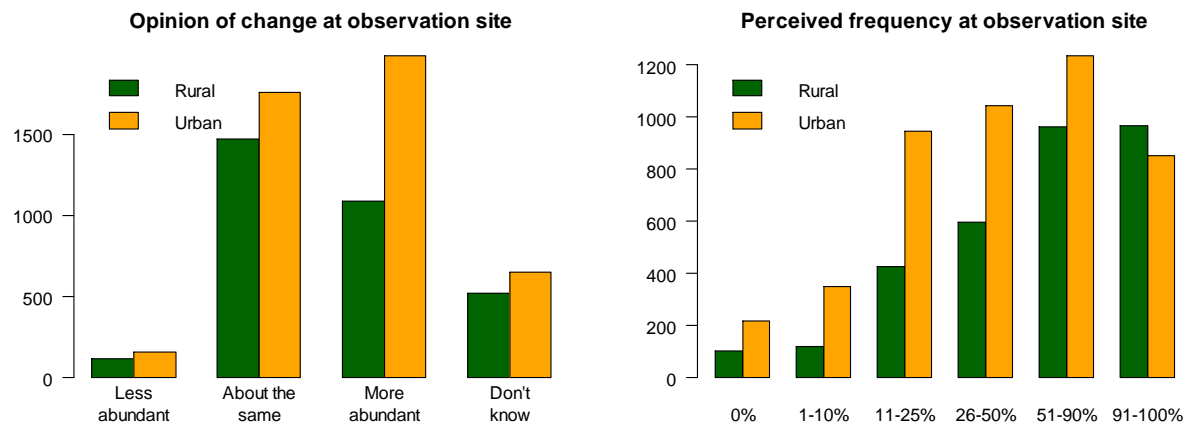


Fig 4. Rural – Urban differences. A) In both 2021 and 2020 urban observers were more likely to report an increase in abundance over the past three years, however B) rural observers were more likely to report sites with a very high frequency of encounter (90-100%) for the sites at which observations were made. Implying that at the sites where they are present in rural areas *kererū* are more predictably present, than at urban sites.

Table 4. Observations of feeding – 15 most common trees observed upon in 2021, compared to the top fifteen from 2018 to 2020. Numbers are the number of records in each year where feeding was observed. The rank order of usage was similar across years: kōwhai and planted fruit trees were the most popular trees for sightings of feeding behaviour, followed by tree lucerne, and willow. For the past three years, puriri was more frequently observed as a food source compared to nīkau, reversing the trend from 2018.

| Tree species | 2018 | 2019 | 2020 | 2021 |
|--------------------|------|------|------|------|
| Kōwhai | 847 | 595 | 1127 | 1125 |
| Planted fruit tree | 535 | 440 | 594 | 630 |
| Tree lucerne | 223 | 204 | 227 | 280 |
| Willow | 173 | 149 | 235 | 220 |
| Puriri | 83 | 91 | 111 | 216 |
| Nīkau | 107 | 59 | 84 | 159 |
| Gum / eucalyptus | 68 | 39 | 70 | 73 |
| Mānuka | 46 | 12 | 42 | 65 |
| Cabbage tree | 28 | 23 | 26 | 39 |
| Karaka | 11 | 5 | 30 | 38 |
| Tōtara | 14 | 10 | 22 | 31 |
| Kahikatea | 12 | 4 | 6 | 19 |
| Tawa | 7 | 9 | 7 | 10 |
| Miro | 4 | 2 | 2 | 8 |
| Ngaio | 12 | 6 | 10 | 5 |
| Other | 598 | 414 | 703 | 807 |
| Not sure | 376 | 278 | 494 | 568 |
| Not feeding | NA | 1514 | 2322 | 3056 |

Table 5a. Summary statistics by region. Totals do not include records that could not be reliably located within a region (e.g. location data was missing or was out at sea).

Final column represents respondents opinion of whether korerū have increased (+1), stayed about the same (0) or decreased (-1) in the surveyed area over the past few years. Regional values are averages across all respondents. In 2021, all regions were of the overall opinion that numbers of korerū had increased over the past three years (i.e. average values were positive and 11 of 16 regions recorded values > 0.35). The national average opinion of change (+0.39) in 2021 was similar to last year.

| Region | Human population | No. of records | | | No. of korerū seen | | | No. of korerū seen per 1000 humans | | | Percentage of total records | | | Average opinion of recent change | | |
|-------------------|------------------|----------------|--------------|--------------|--------------------|--------------|--------------|------------------------------------|-------------|-------------|-----------------------------|------------|------------|----------------------------------|--------------|--------------|
| | 2014 | 2019 | 2020 | 2021 | 2019 | 2020 | 2021 | 2019 | 2020 | 2021 | 2019 | 2020 | 2021 | 2019 | 2020 | 2021 |
| Auckland | 1526900 | 1363 | 2262 | 4087 | 2360 | 3580 | 6873 | 1.55 | 2.34 | 4.5 | 16.58 | 16.73 | 28.08 | 0.170 | 0.357 | 0.305 |
| Bay of Plenty | 282300 | 253 | 380 | 351 | 626 | 861 | 712 | 2.22 | 3.05 | 2.52 | 4.40 | 4.02 | 2.91 | 0.261 | 0.361 | 0.390 |
| Canterbury | 574300 | 240 | 314 | 279 | 713 | 795 | 691 | 1.24 | 1.38 | 1.2 | 5.01 | 3.72 | 2.82 | 0.267 | 0.268 | 0.377 |
| Gisborne | 47100 | 84 | 105 | 40 | 254 | 265 | 237 | 5.39 | 5.63 | 5.03 | 1.78 | 1.24 | 0.97 | 0.279 | 0.127 | 0.231 |
| Hawke's Bay | 158900 | 90 | 142 | 121 | 273 | 429 | 246 | 1.72 | 2.7 | 1.55 | 1.92 | 2.01 | 1 | 0.187 | 0.477 | 0.317 |
| Manawatu-Wanganui | 232500 | 290 | 542 | 468 | 679 | 1137 | 1111 | 2.92 | 4.89 | 4.78 | 4.77 | 5.31 | 4.54 | 0.186 | 0.401 | 0.375 |
| Marlborough | 44800 | 106 | 130 | 69 | 226 | 244 | 113 | 5.04 | 5.45 | 2.52 | 1.59 | 1.14 | 0.46 | 0.397 | 0.130 | 0.234 |
| Nelson | 49300 | 285 | 318 | 142 | 464 | 495 | 340 | 9.41 | 10.04 | 6.9 | 3.26 | 2.31 | 1.39 | 0.125 | 0.381 | 0.386 |
| Northland | 166000 | 472 | 438 | 330 | 900 | 829 | 710 | 5.42 | 4.99 | 4.28 | 6.32 | 3.87 | 2.9 | 0.281 | 0.413 | 0.183 |
| Otago | 211600 | 350 | 1255 | 2155 | 956 | 3475 | 4606 | 4.52 | 16.42 | 21.77 | 6.71 | 16.24 | 18.82 | 0.148 | 0.314 | 0.506 |
| Southland | 96500 | 63 | 187 | 152 | 162 | 1012 | 688 | 1.68 | 10.49 | 7.13 | 1.14 | 4.73 | 2.81 | 0.245 | 0.352 | 0.330 |
| Taranaki | 114800 | 223 | 336 | 216 | 409 | 630 | 424 | 3.56 | 5.49 | 3.69 | 2.87 | 2.94 | 1.73 | 0.191 | 0.539 | 0.442 |
| Tasman | 49100 | 362 | 252 | 197 | 1027 | 528 | 657 | 20.92 | 10.75 | 13.38 | 7.21 | 2.47 | 2.68 | 0.243 | 0.467 | 0.217 |
| Waikato | 430800 | 314 | 483 | 462 | 825 | 940 | 874 | 1.92 | 2.18 | 2.03 | 5.79 | 4.39 | 3.57 | 0.243 | 0.410 | 0.417 |
| Wellington | 491400 | 2151 | 2928 | 2653 | 4006 | 5619 | 5476 | 8.15 | 11.43 | 11.14 | 28.14 | 26.26 | 22.37 | 0.183 | 0.563 | 0.526 |
| West Coast | 32800 | 123 | 174 | 230 | 358 | 555 | 722 | 10.91 | 16.92 | 22.01 | 2.51 | 2.59 | 2.95 | -0.033 | 0.283 | 0.182 |
| TOTAL | 4509100 | 6769 | 10246 | 11952 | 14238 | 21394 | 24480 | 5.41 | 4.74 | 5.43 | 100 | 100 | 100 | 0.21 | 0.42 | 0.39 |

Table 5b. Summary statistics by territorial authority (district or city [cities in bold]).

High values of the number of kererū recorded per 1000 inhabitants (>20) are highlighted in yellow. Final column represents respondents opinion of whether kererū have increased (+1), stayed about the same (0) or decreased (-1) in the surveyed area over the past few years. Negative numbers (decreases) are in a red font.

| Territorial Authority (District or City) | Human population (2018) | No. of records | | No. of kererū | | Kererū per 1000 humans | | Percent of total | | Change | |
|---|----------------------------|----------------|------|---------------|------|------------------------|-------|------------------|-------|--------|------|
| | | 2020 | 2021 | 2020 | 2021 | 2020 | 2021 | 2020 | 2021 | 2020 | 2021 |
| Ashburton District | 34500 | 12 | 2 | 21 | 18 | 0.61 | 0.52 | 0.1 | 0.07 | 0 | 0.5 |
| Auckland | 1695900 | 2262 | 4087 | 3580 | 6873 | 2.11 | 4.05 | 16.73 | 28.08 | 0.36 | 0.31 |
| Buller District | 10150 | 88 | 89 | 353 | 282 | 34.78 | 27.78 | 1.65 | 1.15 | 0.09 | 0.06 |
| Carterton District | 9340 | 42 | 36 | 127 | 142 | 13.6 | 15.2 | 0.59 | 0.58 | 0.67 | 0.65 |
| Central Hawke's Bay District | 14150 | 27 | 20 | 66 | 39 | 4.66 | 2.76 | 0.31 | 0.16 | 0.58 | 0.27 |
| Central Otago Dist. | 21000 | 11 | 11 | 66 | 18 | 3.14 | 0.86 | 0.31 | 0.07 | 0.78 | 0.33 |
| Christchurch City | 388500 | 180 | 160 | 512 | 396 | 1.32 | 1.02 | 2.39 | 1.62 | 0.23 | 0.39 |
| Clutha District | 17700 | 102 | 96 | 667 | 694 | 37.68 | 39.21 | 3.12 | 2.83 | 0.28 | 0.47 |
| Dunedin City | 130700 | 1080 | 1969 | 2613 | 3719 | 19.99 | 28.45 | 12.21 | 15.19 | 0.3 | 0.51 |
| Far North District | 64400 | 185 | 120 | 321 | 206 | 4.98 | 3.2 | 1.5 | 0.84 | 0.43 | 0.21 |
| Gisborne District | 49100 | 104 | 40 | 262 | 237 | 5.34 | 4.83 | 1.22 | 0.97 | 0.13 | 0.23 |
| Gore District | 12500 | 18 | 6 | 87 | 20 | 6.96 | 1.6 | 0.41 | 0.08 | - | 0.75 |
| Grey District | 13550 | 48 | 63 | 93 | 212 | 6.86 | 15.65 | 0.43 | 0.87 | 0.79 | 0.31 |
| Hamilton City | 169300 | 9 | 7 | 11 | 9 | 0.06 | 0.05 | 0.05 | 0.04 | 1 | 0.6 |
| Hastings District | 80600 | 65 | 59 | 257 | 133 | 3.19 | 1.65 | 1.2 | 0.54 | 0.27 | 0.45 |
| Hauraki District | 19950 | 21 | 15 | 39 | 26 | 1.95 | 1.3 | 0.18 | 0.11 | 0.58 | 0.09 |
| Horowhenua Dist. | 33000 | 45 | 41 | 110 | 110 | 3.33 | 3.33 | 0.51 | 0.45 | 0.4 | 0.37 |
| Hurunui District | 12850 | 14 | 18 | 30 | 55 | 2.33 | 4.28 | 0.14 | 0.22 | 0.57 | 0.46 |
| Invercargill City | 55200 | 58 | 57 | 180 | 136 | 3.26 | 2.46 | 0.84 | 0.56 | 0.56 | 0.28 |
| Kaikoura District | 3830 | 8 | 2 | 13 | 3 | 3.39 | 0.78 | 0.06 | 0.01 | 0.6 | NA |
| Kaipara District | 23200 | 43 | 42 | 81 | 127 | 3.49 | 5.47 | 0.38 | 0.52 | 0.64 | 0.33 |
| Kapiti Coast District | 53200 | 268 | 296 | 584 | 614 | 10.98 | 11.54 | 2.73 | 2.51 | 0.44 | 0.48 |
| Kawerau District | 7080 | 5 | 0 | 8 | 0 | 1.13 | 0 | 0.04 | 0 | 0 | NA |
| Lower Hutt City | 105900 | 794 | 652 | 1332 | 1147 | 12.58 | 10.83 | 6.23 | 4.69 | 0.5 | 0.37 |
| Mackenzie District | 4670 | 1 | 0 | 1 | 0 | 0.21 | 0 | 0 | 0 | 1 | NA |
| Manawatu District | 30900 | 73 | 56 | 138 | 118 | 4.47 | 3.82 | 0.65 | 0.48 | 0.43 | 0.35 |
| Marlborough Dist. | 46600 | 128 | 68 | 238 | 111 | 5.11 | 2.38 | 1.11 | 0.45 | 0.12 | 0.22 |
| Masterton District | 25700 | 46 | 23 | 88 | 45 | 3.42 | 1.75 | 0.41 | 0.18 | 0.41 | 0.46 |
| Matamata-Piako District | 35200 | 18 | 14 | 23 | 16 | 0.65 | 0.45 | 0.11 | 0.07 | 0.2 | 0 |
| Napier City | 62800 | 31 | 36 | 47 | 59 | 0.75 | 0.94 | 0.22 | 0.24 | 0.72 | 0.25 |
| Nelson City | 51900 | 318 | 141 | 495 | 337 | 9.54 | 6.49 | 2.31 | 1.38 | 0.38 | 0.38 |

| | | | | | | | | | | | |
|--------------------------------|---------------|------|------|------|------|-------|-------|------|------|------|------|
| New Plymouth Dist. | 81900 | 279 | 177 | 487 | 347 | 5.95 | 4.24 | 2.28 | 1.42 | 0.5 | 0.47 |
| Opotiki District | 9110 | 33 | 25 | 128 | 44 | 14.05 | 4.83 | 0.6 | 0.18 | 0.3 | 0.43 |
| Otorohanga District | 10250 | 23 | 18 | 45 | 33 | 4.39 | 3.22 | 0.21 | 0.13 | 0.18 | 0.5 |
| Palmerston North City | 88700 | 134 | 141 | 237 | 232 | 2.67 | 2.62 | 1.11 | 0.95 | 0.63 | 0.42 |
| Porirua City | 56800 | 167 | 195 | 308 | 353 | 5.42 | 6.21 | 1.44 | 1.44 | 0.49 | 0.55 |
| Queenstown-Lakes District | 39200 | 28 | 45 | 43 | 125 | 1.1 | 3.19 | 0.2 | 0.51 | 0.44 | 0.53 |
| Rangitikei District | 15150 | 71 | 38 | 109 | 94 | 7.19 | 6.2 | 0.51 | 0.38 | 0.14 | 0.38 |
| Rotorua District | 72500 | 111 | 105 | 266 | 209 | 3.67 | 2.88 | 1.24 | 0.85 | 0.28 | 0.39 |
| Ruapehu District | 12750 | 89 | 48 | 205 | 68 | 16.08 | 5.33 | 0.96 | 0.28 | 0.11 | 0.49 |
| Selwyn District | 62200 | 11 | 9 | 17 | 12 | 0.27 | 0.19 | 0.08 | 0.05 | -0.2 | 0.75 |
| South Taranaki District | 28300 | 25 | 17 | 49 | 39 | 1.73 | 1.38 | 0.23 | 0.16 | 0.68 | 0.27 |
| South Waikato District | 24400 | 6 | 22 | 8 | 42 | 0.33 | 1.72 | 0.04 | 0.17 | 0.4 | 0.78 |
| South Wairarapa District | 10450 | 63 | 75 | 159 | 165 | 15.22 | 15.79 | 0.74 | 0.67 | 0.6 | 0.64 |
| Southland District | 31400 | 108 | 89 | 735 | 532 | 23.41 | 16.94 | 3.44 | 2.17 | 0.35 | 0.33 |
| Stratford District | 9510 | 39 | 16 | 115 | 29 | 12.09 | 3.05 | 0.54 | 0.12 | 0.73 | 0.38 |
| Taranua District | 17900 | 60 | 57 | 187 | 253 | 10.45 | 14.13 | 0.87 | 1.03 | 0.64 | 0.41 |
| Tasman District | 52100 | 252 | 197 | 528 | 657 | 10.13 | 12.61 | 2.47 | 2.68 | 0.47 | 0.22 |
| Taupo District | 37200 | 82 | 75 | 185 | 142 | 4.97 | 3.82 | 0.86 | 0.58 | 0.33 | 0.57 |
| Tauranga City | 135000 | 26 | 19 | 29 | 32 | 0.21 | 0.24 | 0.14 | 0.13 | 0.44 | 0.44 |
| Thames-Coromandel District | 29700 | 112 | 79 | 240 | 163 | 8.08 | 5.49 | 1.12 | 0.67 | 0.53 | 0.45 |
| Timaru District | 47300 | 72 | 50 | 157 | 123 | 3.32 | 2.6 | 0.73 | 0.5 | 0.31 | 0 |
| Upper Hutt City | 43700 | 487 | 342 | 1208 | 985 | 27.64 | 22.54 | 5.65 | 4.02 | 0.49 | 0.46 |
| Waikato District | 75300 | 136 | 142 | 262 | 261 | 3.48 | 3.47 | 1.22 | 1.07 | 0.43 | 0.31 |
| Waimakariri District | 60700 | 9 | 32 | 15 | 63 | 0.25 | 1.04 | 0.07 | 0.26 | 0.6 | 0.35 |
| Waimate District | 7940 | 6 | 4 | 28 | 16 | 3.53 | 2.02 | 0.13 | 0.07 | 0.4 | 0 |
| Waipa District | 54000 | 46 | 47 | 74 | 79 | 1.37 | 1.46 | 0.35 | 0.32 | 0.25 | 0.39 |
| Wairoa District | 8230 | 14 | 5 | 50 | 14 | 6.08 | 1.7 | 0.23 | 0.06 | 0.8 | -0.5 |
| Waitaki District | 22300 | 20 | 27 | 61 | 37 | 2.74 | 1.66 | 0.29 | 0.15 | 0.5 | 0.13 |
| Waitomo District | 9640 | 22 | 35 | 43 | 86 | 4.46 | 8.92 | 0.2 | 0.35 | 0.4 | 0.33 |
| Wanganui District | 45200 | 59 | 83 | 119 | 230 | 2.63 | 5.09 | 0.56 | 0.94 | 0.47 | 0.22 |
| Wellington City | 216300 | 1036 | 1017 | 1745 | 2003 | 8.07 | 9.26 | 8.16 | 8.18 | 0.69 | 0.65 |
| Western Bay of Plenty District | 50100 | 155 | 150 | 317 | 326 | 6.33 | 6.51 | 1.48 | 1.33 | 0.34 | 0.37 |
| Westland District | 8890 | 36 | 77 | 105 | 227 | 11.81 | 25.53 | 0.49 | 0.93 | 0.43 | 0.24 |
| Whakatane District | 35700 | 50 | 53 | 111 | 101 | 3.11 | 2.83 | 0.52 | 0.41 | 0.62 | 0.47 |
| Whangarei District | 91400 | 201 | 167 | 408 | 376 | 4.46 | 4.11 | 1.91 | 1.54 | 0.36 | 0.12 |

For the past two years Clutha district has recorded the greatest number of kereru per capita of human population, over 35 kererū per 1000 inhabitants. Auckland City saw a large increase in the number of kereru recorded, from 3580 in 2020 to 6783 in 2021. Hamilton is the city where kererū are least likely to be recorded (just 9 records from a human population in excess of

169,000). In 2021, Dunedin was the city with the greatest number of kererū observed per capita (26.5 per 1000), overtaking the Upper Hutt record from 2020.

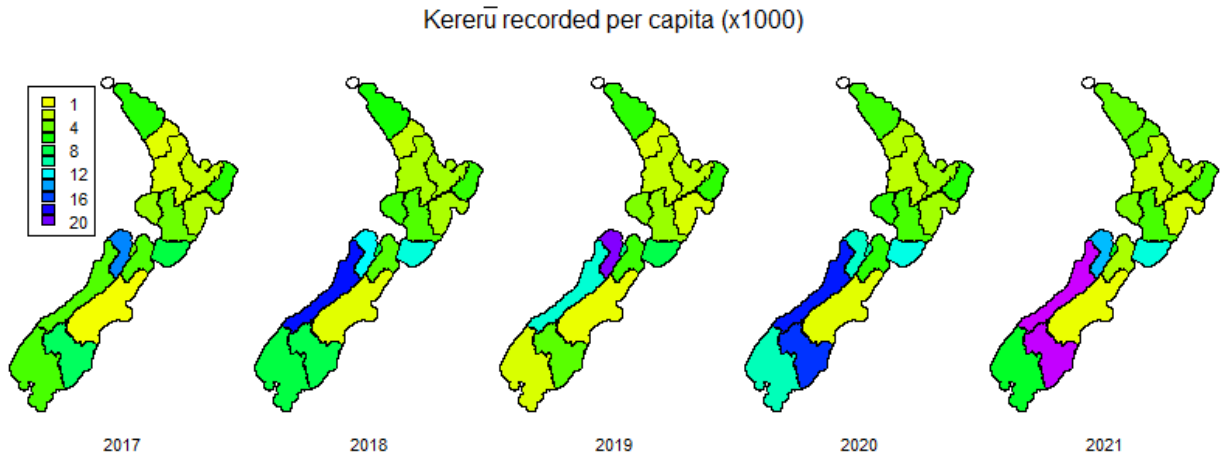


Fig. 5a. Number of kererū records, weighted per 1000 human inhabitants in each region. Over the past two years, Westland and Otago generally record the greatest number of kererū per human inhabitant. See also Table 5a.

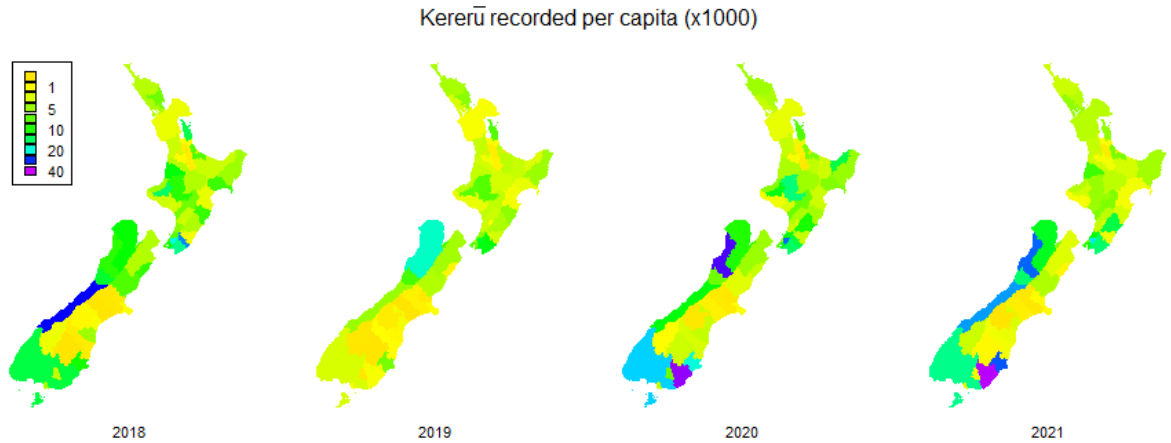


Fig. 5b. Number of kererū records (x1000), divided by the human population in each territorial authority (district or city). The top five districts for spotting kererū in 2021 were Clutha, Dunedin, Buller, Westland and Upper Hutt. The first four all being in the South Island. See also Table 5b.

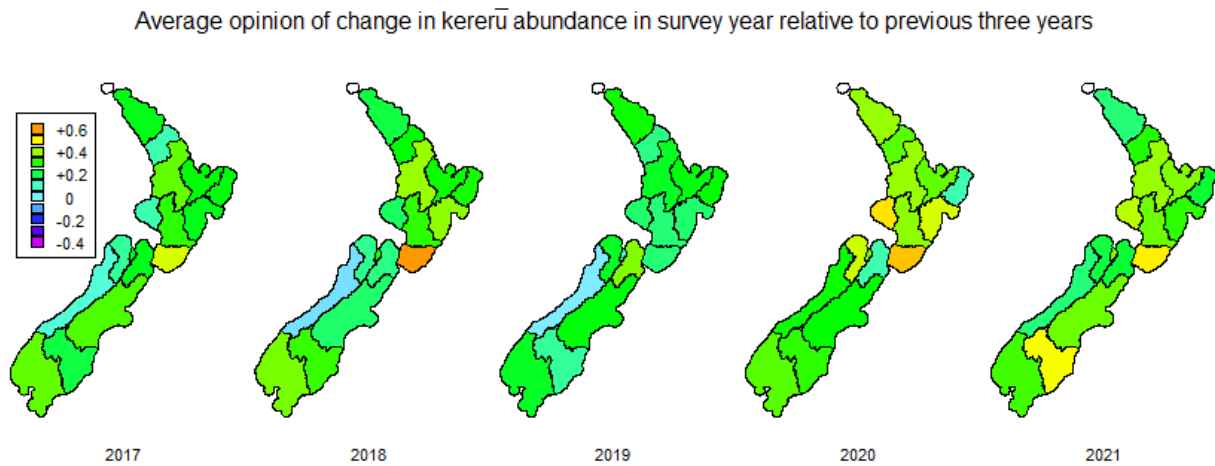


Fig 6. Average opinion of change in kererū abundance, based on participants' experience of the area over a three year period. +1 indicates that all participants believed that kererū were increasing, -1 indicates that all participants believed that kererū were decreasing in the region. The major change in 2021 was a greater perception of increase across the Otago region (yellow = +0.5).

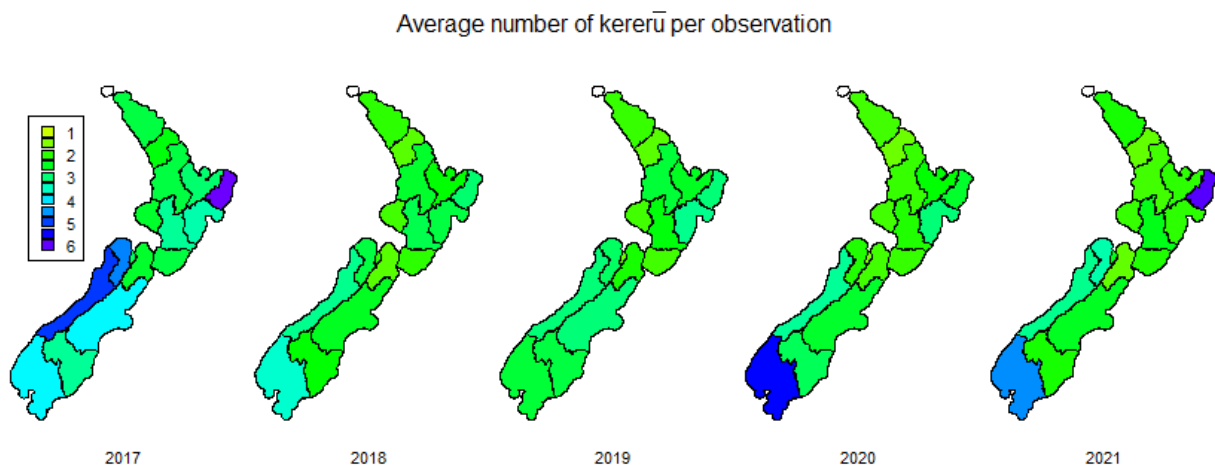


Fig 7. Mean number of kererū per record, averaged across regions. Regions in blue and purple tend to record larger groups of kererū. Gisborne region recorded the greatest number of kererū per sighting in 2021, as in 2017.

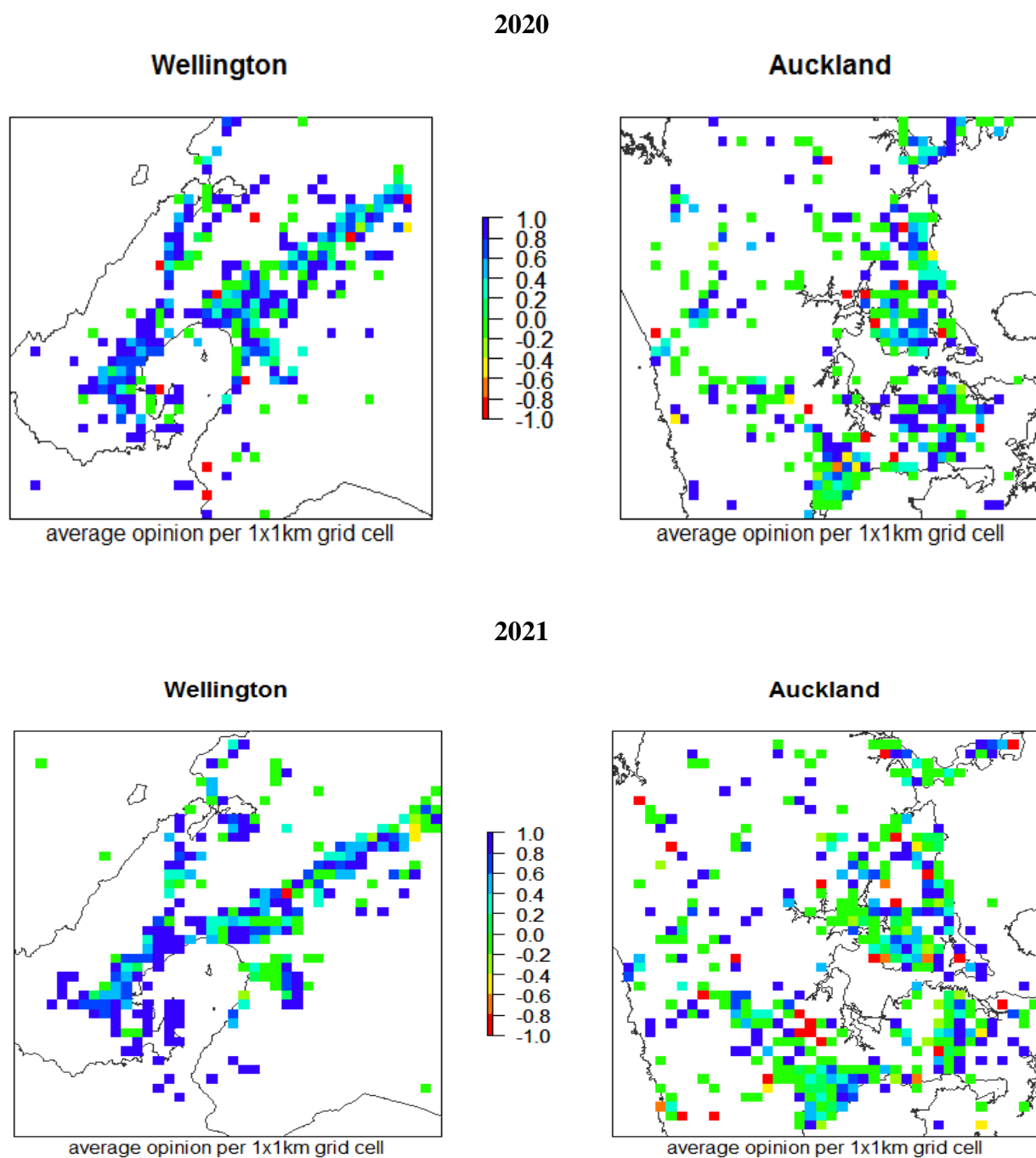


Fig 8. Average opinion of recent change in koreru abundance, assessed at specific sites around Auckland and Wellington at a 1x1km resolution, based on participant's experience of the area. Top = 2020, Bottom = 2021. NB the reversal of colour scheme from Figure 6: here, blue indicates increases, red indicates decreases.

Perceived Frequency of encounter (2021)

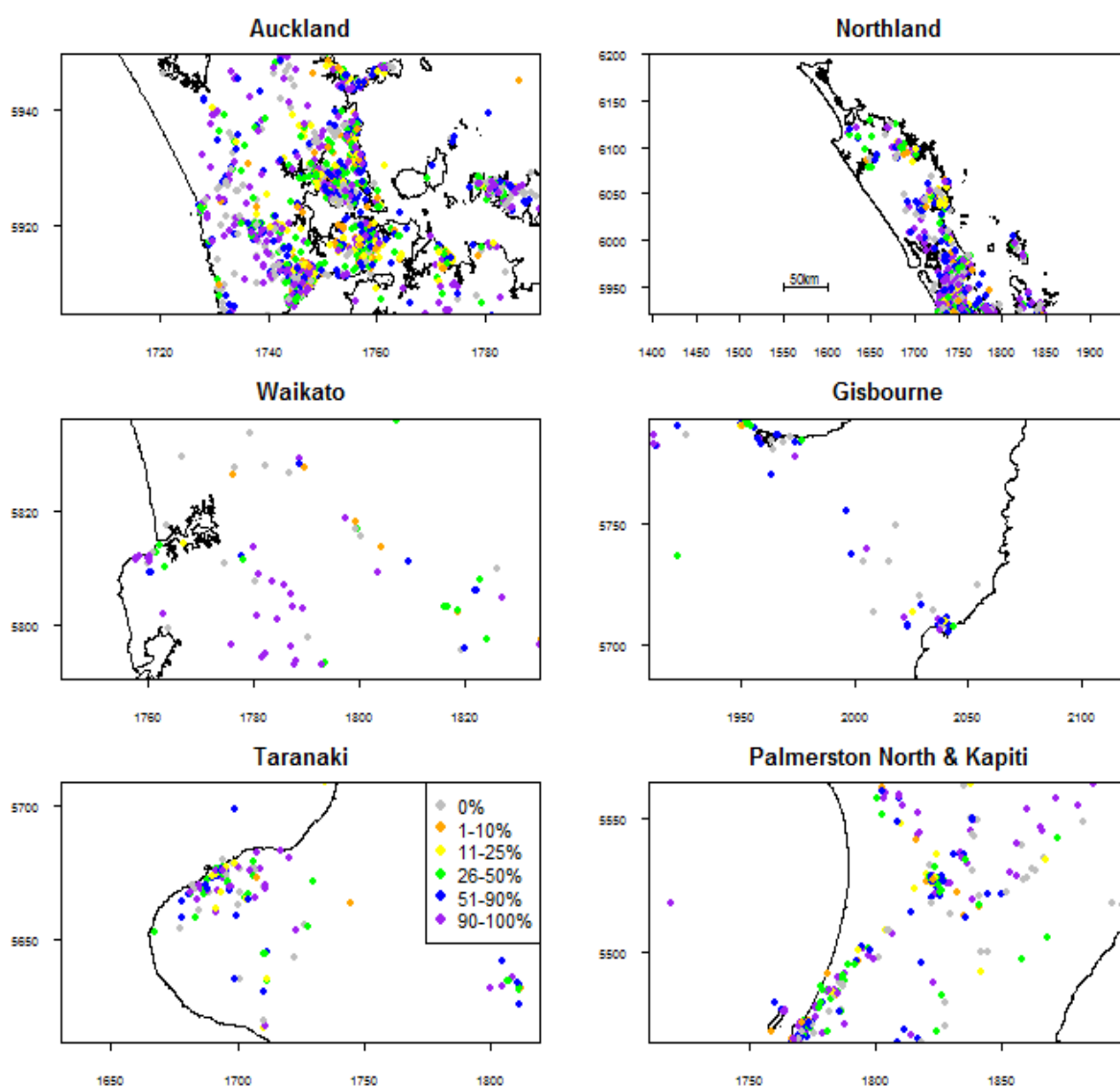


Fig 9a). Perceived frequency of encountering kereru, based on participant's knowledge of the observation site. (Northland to Kapiti)

Perceived Frequency of encounter (2021)

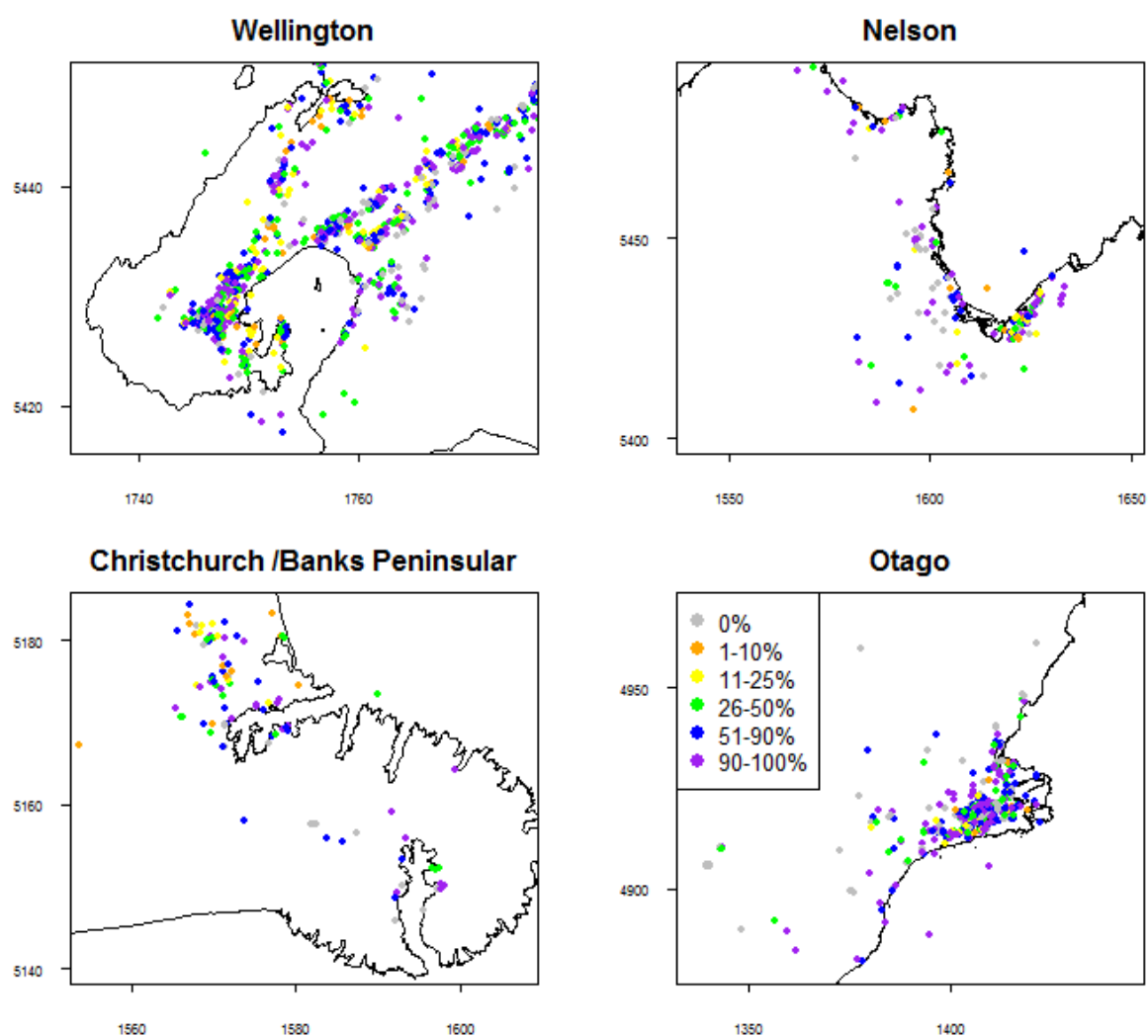


Fig 9b). Perceived frequency of encountering kereru, based on participant's knowledge of the observation site. (Wellington to Otago)

Appendix 1. Great Kererū Count 2017 web-interface and questions

1) Where did you spot the kererū?



Use ctrl + scroll to zoom the map

Map data ©2017 GBRMPA, Google

Terms of Use

2) When did you see the kererū?

3) How many individuals did you count? (Required)

4) Was this a premeditated, timed survey or an impromptu 'instant record'?

Optional



5) How long did you spend looking when making this observation (in minutes)?

Optional



6) How far away were you when you first observed it? (in metres)

Optional



7) While observing, were you primarily sitting/standing, walking or something else?

Optional



8) Where was the kererū when you first saw it?

Optional



9) What setting were you in, when you made the observation?

Optional



10) What type of place were you in when you made the observation?

Optional



11) Was the kererū feeding?

Optional



12) If feeding from a tree or shrub, what type of tree? To get the ID right, you can create another observation with a photo of the tree on NatureWatch NZ.

Optional



13) Were any NZ pigeon display flights observed? In these distinctive displays the bird gains altitude with noisy wingbeats, stalls with its body vertical and wings and tail spread, then tilts forwards or sometimes sideways to glide silently down again.

Not Recorded



14) How frequently have you seen them at this location before?

Optional



15) In your opinion, have kererū become more abundant, less abundant or stayed about the same in this area over the past three years?

Optional



Select one or more photos. ([Optional](#))