Waikereru Five-Minute Bird Counts

December 2023/January 2024

Prepared by Ecoworks NZ Ltd.

1048 Waimata Valley Road

Private Bag 7438

Gisborne

www.ecoworks.co.nz

Across December 2023 and January 2024, Ecoworks staff conducted five-minute bird counts across Waikereru Ecosanctuary and Longbush Reserve. Counts were replicated at sites mapped for baseline monitoring in September 2022.

The 24 sites established in 2022 were re-surveyed, and two sites were added on the northern boundary. Sites are spaced at least 250-metres apart to increase the independence of results at each site. At each site, surveyors record all bird species able to be identified through site or sound during a five-minute window. All the survey days had fine weather conditions with warm–hot temperatures (16 to >22°C) and moderate to no wind.

Figure 1. Map of Waikereru and Longbush depicting the locations of each of the 26 five-minute bird count sites.

Results

In the 2023 five-minute bird counts, 20 species were identified around Waikereru Ecosanctuary and Longbush Reserve. The most abundant species recorded was the European chaffinch. The most abundant native species was the tūī (Fig. 2); tūī were recorded at 20 of the 26 sites, as were bellbird and grey warbler (Table 2).

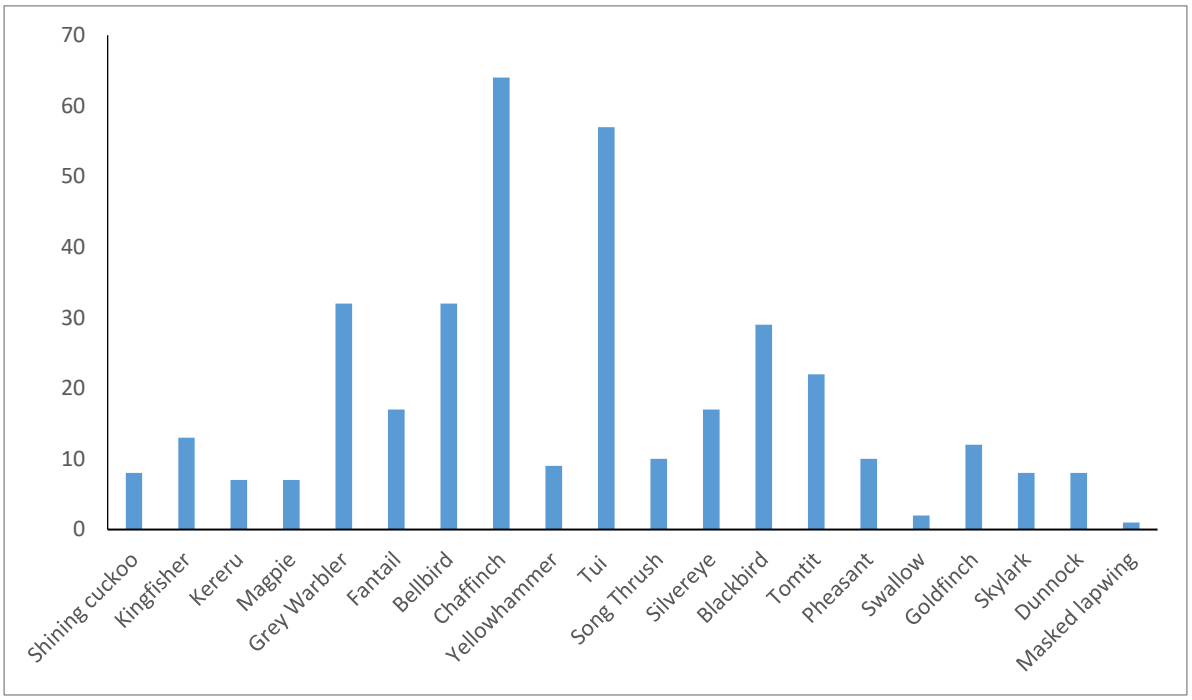

Figure 2. Total numbers of each species observed across the 2023 Waikereru five-minute bird counts.

Site 1.2 was the most specious, followed closely by site 4.1 (Table 1). Site 5.4 had the fewest species. The most common number of species at a site was 9, the average was 7. Site 4.1 had the highest number of native species recorded (Table 1). Generally, there was more than or an equal number of native species compared with exotic species, which is encouraging for the trajectory of the species composition at Waikereru and Longbush.

Table 1. Species richness and composition for each site, from the 2023/24 survey.

Site	Species Richness	Native	Exotic
1.1	10	6	4
1.2	12	6	6
1.2.5	5	3	2
1.2.75	9	5	4
1.3	5	2	3
2.1	9	6	3
2.2	5	5	0
2.3	9	5	4
2.4	10	4	6
2.5	8	6	2
2.6	9	6	3
2.7	9	6	3
3.1	7	5	2
3.2	7	4	3
3.3	8	5	3
4.1	11	7	4
4.2	10	6	4
4.3	8	3	5
4.4	5	2	3
4.5	7	4	3
4.6	5	4	1
4.7	7	4	3
5.1	6	3	3
5.2	8	5	3
5.3	9	5	4
5.4	3	2	1

Comparison with 2022 Survey

In comparison with the 2022 survey, species richness was very similar, with 19 species recorded in 2022 versus 20 in 2023. However, some species from 2022 were not identified in 2023 (Table 2): the mallard duck, paradise shelduck, sparrow, swamp harrier, and whitehead. Conversely, some species not identified in 2022 were noted in 2023: the dunnock, goldfinch, masked lapwing, shining cuckoo, skylark, and welcome swallow.

The frequency of the bellbird dropped slightly, while tūī were identified significantly more frequently (Table 2). There is a small margin of error to be acknowledged here, as the calls of these two species can be very similar there is likely to be some observer error introduced in each direction. The tomtit and the sacred kingfisher were also identified significantly more frequently in 2023 compared with 2022; the frequency of these two species was more than double (Table 2).

The number of fantail observed, and the frequency of them was significantly reduced in 2023 compared to 2022 (Fig. 3, Table 2). The harriers were also less frequently observed in 2023 compared with 2022 (Table 2), possibly as a result of a lower frequency of vocalisations. The number of grey warblers identified was, additionally, significantly fewer than last year (Fig. 3), although the frequency of this species has not reduced dramatically (Table 2).

No whiteheads were observed this year during survey time, however it is worth noting that one was heard around site 4.4. Some individuals have potentially shifted to inhabit more of the pine forest adjacent to Waikereru as whitehead tend to enjoy a range of canopy heights and do not mind pine forest.

The abundance of kererū recorded has remained stable over the past year (Table 2), as have the frequencies of many of the exotic species recorded. The duck species were both absent during survey times, which may be a flow on impact of Cyclone Gabrielle, or could be due to the time of year or weather conditions.

Table 2. Frequency of each species, i.e. how many of the 26 sites each was present at, for both 2022 and the present survey.

Species	Scientific Name	2022	2023
Bellbird	*Anthornis melanura*	23	20
Blackbird	*Turdus merula*	12	17
Chaffinch	*Fringilla coelebs*	17	26
Dunnock	*Prunella modularis*	0	7
Fantail	*Rhipidura fuliginosa*	20	9
Goldfinch	*Carduelis carduelis*	0	7
Grey warbler	*Gerygone igata*	24	20
Kererū	*Hemiphaga novaeseelandiae*	6	5
Kingfisher	*Todiramphus sanctus*	2	10
Magpie	*Gymnorhina tibicen*	12	5
Mallard duck	*Anas platyrhynchos*	1	0
Masked lapwing	*Vanellus miles*	0	1
Paradise shelduck	*Tadorna variegata*	7	0
Pheasant	*Phasianus colchicus*	12	8
Shining cuckoo	*Chrysococcyx lucidus*	0	7
Silvereye	*Zosterops lateralis*	7	11
Skylark	*Alauda arvensis*	0	7
Song thrush	*Turdus philomelos*	7	8
Sparrow	*Passer domesticus*	1	0
Swallow	*Hirundo neoxena*	0	1
Swamp harrier	*Circa approximans*	9	0
Tomtit	*Petroica macrocephala*	6	14
Tūī	*Prosthemadera novaeseelandiae*	14	20
Whitehead	*Mohoua albicilla*	1	0
Yellowhammer	*Emberiza citrinella*	6	5

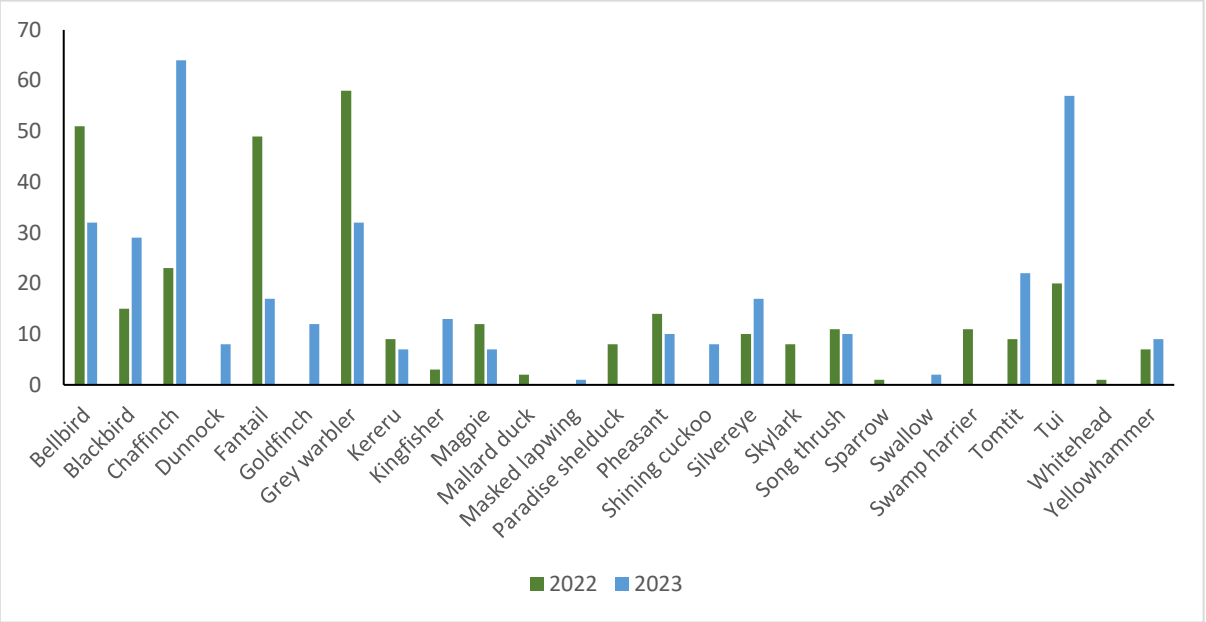

Figure 3. Total numbers of each species observed across the 2023/24 Waikereru five-minute bird counts compared with the 2022 count results.

Discussion

The results of this survey indicate that the birdlife at Waikereru Ecosanctuary and Longbush Reserve is healthy and diverse. Sites close to or within relatively dense vegetation cover tended to have a more diverse species composition, where sites in edge habitat tend to have lower diversity.

The frequency of tomtit observation, and the general abundance of other small bird species, such as the finches and dunnock, is a good indicator that predator control in Waikereru Ecosanctuary and Longbush Reserve is continuing to successfully keep predators suppressed in this area. The same is true for the persistence of species such as the kererū which are vulnerable to resource competition with introduced mammals, particularly possum.

Longer-term data is required to comment more accurately on the trajectory of species at Waikereru and Longbush, however the data from these two surveys looks promising. Some of the changes to species frequency and abundance are likely to be explained by seasonal variation as the present survey was conducted in summer rather than spring due to unseasonal weather conditions, as in 2022. We would expect the diversity and abundance of native species to continue increasing as the regenerating forest grows, assuming that comprehensive predator control is maintained also.

Waikereru Ecosanctuary and Longbush Reserve provide vital habitat and refuge for native species in Gisborne town, this is reflected in the results of this survey.

Long term and high-quality pest control is vital within this restoration 'Arc' of biodiversity within the lower Waiapu Ecological District. Waikereru holds the highest density of korimako, kereru,

tui and North Island tomtit in comparison with any other indigenous forest site within the Waimata Catchment (Steve Sawyer, *pers.obs*). This site also contains rare biodiversity such as land snails, gecko, skink, orchid and bats.

Pest control provides multiple benefits for the extant bird species at Waikereru. By removing possum and ungulate browsers we are protecting forest age class tiers which provide shelter and protection from winter weather events, particularly for tomtit, fantail and warbler. Pest control also provides an optimal supply of fruit and invertebrates for our forest bird species and ensures direct protection against predation by mustelids, ship rats and possum.

The success of forest birds at Waikereru lays the foundation for future ecosystem restoration efforts within the full Waimata catchment, lower Waiapu and Turanga Ecological District. Kereru, korimako, tui and multiple exotic bird species will be distributing seed material across an extremely large area. Kereru have been recorded travelling 160 kms per day to feed on specific fruiting tree species (Dr R. Powlesland, *pers.com*). Therefore it is highly likely kereru are translocating species such as tawa, kohekohe, puriri, nikau, titoki, kowhai and many others both within the Waimata catchment and further afield across multiple ecological districts.

All indigenous podocarp-hardwood and regenerating broad-leaved forest sites within the Waimata catchment should be receiving high quality and targeted pest control to remove primarily ship rats, possum and mustelids. Unfortunately most are not, this does not support catchment restoration or species recovery.

If you require any further information regarding this survey, please contact Steve Sawyer on 027 209 6049 or steve@ecoworks.co.nz.

Steve Sawyer & Emma Naylor,

Ecoworks NZ