

The Oruawharo/Medlands Ecovision (OME) Kākā Counts at Medlands/Oruawharo 2024 & 2025 and comparative results

Summary compiled by John Ogden on behalf of OME



Kākā eating figs – Oruawharo Lane

SUMMARY

1. Kākā were counted at seven 'sites' within the Medlands 'location', for 30 minutes in the mornings and evenings on December 12th 2024 and June 27th 2025.
2. The minimum site count was the maximum number of birds seen together or clearly identified as different individuals at each site.
3. The maximum site count was the total number of counted individuals and could include recounts of the same bird (though attempts were made to avoid that).
4. The average count $((\text{min} + \text{max})/2)$ was summed for all sites to give a mean number estimate for the Medlands location.
5. The assumptions involved are given consideration.
6. The summer (Dec.) counts gave an average count of 38-39 birds, with a minimum-maximum spread from 24 to 54 for the Medlands location.
7. The winter (June) counts gave average counts of 17-19 birds, with a minimum-maximum spread of 12 – 22 for the Medlands location.
8. The summer:winter difference relates to off-island migration in winter, estimated to be c. 50% of the Aotea population.
9. Birds return to Aotea from late August to October; most probably in September.
10. Other studies of tracked birds demonstrate that kākā migrate from Aotea to Coromandel and the Hauraki Plains, and possibly elsewhere on the mainland.
11. Comparative data from other monitoring studies on the island demonstrate that the Aotea kaka population has been increasing since at least 2008.
12. Camera images from Medlands, and other observations, imply that competition for suitable tree nest-hollows might limit population growth.
13. Exotic trees may supply much of the kaka food requirements in winter. Clearing of pines is reducing this winter resource and could be a factor in off-island migration.
14. It is recommended (1) that the Medlands study is repeated on an annual timeframe (every 2 or 5 years); (2) that other studies of nesting attempts and success in the forested areas inland from Medlands be encouraged; (3) that nesting boxes of adequate size be installed in the Medlands Valley.

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Introduction

The purpose of the current monitoring was to establish a ‘baseline’ figure for the Medlands area by methods comparable to those used in the earlier 2007 – 2011 counts made at many locations throughout the Island and reported In *Environmental News* (Issues #13, #16, #23 & #24). December was chosen as the first counting month because those counts showed markedly higher numbers during December compared with ‘winter’ months (June, July and September). Also, bird counts had been made in December from 2008 to 2018 at Windy Hill Sanctuary (Fig 44 in “Birds of Aotea”), and subsequently (Ogden 2025), and information from the annual December ‘Aotea Bird Count’ (Aotea Great Barrier Environmental Trust: AGBET) was also available for comparison.

The second counting month was June 2025, because earlier studies indicated, and later radio-tracking of marked birds confirmed, that some kaka leave the Island during the winter months, going to the Hauraki Plains around Hamilton, to the Coromandel Peninsula, and probably elsewhere in the Auckland area and Little Barrier Island. Winter:Summer comparisons (*Environmental News* 24 (2011), Fig 2) indicated that c.50% of the Island summer population (then estimated at c.100 breeding pairs) leave the Island in winter.

The December trends in kākā numbers at Windy Hill from 2008 to 2024 are clearly positive. Anecdotal evidence from elsewhere, including Medlands, also suggests that kākā numbers have been increasing during the last decade or more, and that significant numbers leave Aotea during the winter months. The 2024-25 monitoring at Medlands was intended to provide baseline figures for both summer and winter kākā populations at that location.

Methodological considerations

It is important to keep the concept of a ‘location’ distinct from that of a ‘site’ as used here. Sites are counting points within a general location (eg. Medlands). Ideally, different sites do not count the same birds, but this cannot be totally avoided. The aim is to use the site counts to estimate the average, maximum and minimum, kākā population at the location.

Kākā are noisy and conspicuous, often in small flocks, and very mobile. This presents several sampling problems. In particular, observers at different sites in any given location (eg. ‘Medlands’) might be counting the same birds as they move about. This problem can be partially alleviated by making sure observers at *different sites* within a *location* all count at the same time, and keeping the counting period short. However, making it very short (eg. the standard 5 minutes) increases between-count variance, so that more replication is required.

The protocol adopted in 2007 was to have a few observers at different sites scattered throughout any ‘location’, and to make observation over the same 30 minutes at all sample

sites. In those earlier counts the locations were widely separated (eg. Medlands, Awana) so that kākā movement between them during the brief count period was considered unlikely. Only two ‘replications’, one count in the morning and another in the evening, were employed.

The minimum number of birds present in a location can be taken as the *largest* number actually counted *together* at a site in that location, *or thought to be separate individuals*, by any observer at any site in that location. That is – there must be *at least that number* present at the location. The possible location maximum is the sum of all observer’s counts at the different sites within a location in the sampling period – thus assuming that *all birds counted are separate individuals*. The maximum count probably over-estimates the number present, while the minimum may be largely a function of family or flock size, and is likely to underestimate numbers actually present at the location. The numerical average of minima and maxima *for a site*, is simply a compromise between these counts:

Site average = (maximum seen together + all kākā counted in the 30-minute interval)/2.

This can be summed across sites to give a location total. Despite it’s unknown accuracy with respect to the numbers actually present, this standardised procedure provides estimates which are likely to be nearer the true number at the location than either the minima or maxima.

Count at Location Medlands

Seven sites were chosen to cover the Medlands area (Table 1). Three of these (3, 4 & 7) were to the west of Medland Rd. and should observe birds moving from the nearby bush covered slopes, while the remainder were to the east of the road and sampled the beach settlement houses and gardens. Note that Site 1 was not counted in June, being replaced by a site at: 9 The Lane. Medlands (Peggy Garlic).

Site	Site No.	Observer
11 Greenside Rd.	1	Graham Cleary & Brock
67 Sandhills Rd.	2	Raoul Stuart
501 Medland Rd.	3	Lotte McIntyre
64 Mason Rd.	4	Kim Bannister & Frances McClure
5B Oruawharo Ln.	5	John & Jenni Ogden
157A Sandhills Rd.	6	Jennifer Neads
619 Medland Rd.	7	Annamarie Clough

Table 1. Sample locations and personnel.

Timing

Due to heavy rain on the morning of December 12th 2024, the count was largely abandoned. However, the evening count was completed as planned (7.0 – 7.30PM) and a morning count made on the 13th (7.30 – 8.0AM) at 6 locations. The weather on both these occasions was overcast with low cloud. The June counts were both made on the 27th from 7.30 to 8.0 AM and 4.0 to 4.30 PM. The weather was mild and cloudy but fine.

Results (December 2024)

The data are given in Appendix 1. Fig 1. Gives a summary of the various estimates. The smallest (absolute minimum) is the largest number of birds at *any one of the sites* thought to be definitely different individuals. This figure (10) must underestimate the total population present as it is inconceivable that only ten birds were moving about to appear at all sites almost simultaneously! The sum of minima sums only birds seen to be different individuals at each site, while the maximum assumes that all birds recorded, seen or heard, were different individuals. As kākā were seen flying between locations during the counting period this maximum is certainly too high. The true number (at that time on that day) presumably lies between the sum of minima and sum of maxima, indicated by the averages in Fig 1. Thus, we can be fairly confident that the true figure is between 24 and 54, and probably between 30 – 40. The two replicate averages are reassuringly close: 38 and 39.

Birds were observed moving from the bush-clad slopes to the coastal settlement, perhaps to feed on the pohutukawa which was just starting to flower in abundance. Nest sites are only known in the forested slopes. There was a marked difference between the broad averages between the inland three counts (sites 3 and 4), and the sites located on the coastal strip (Sandhills Rd. etc, sites 1,2,5,6). The former gave 11 ± 6 (mean $\pm$ standard deviation) while the latter was 4 ± 3 . These numbers indicate kaka's general preference for bush areas. Movement to the coastal garden areas appeared to be to visit flowering Pohutukawa and/or flowering and fruiting Puriri trees.

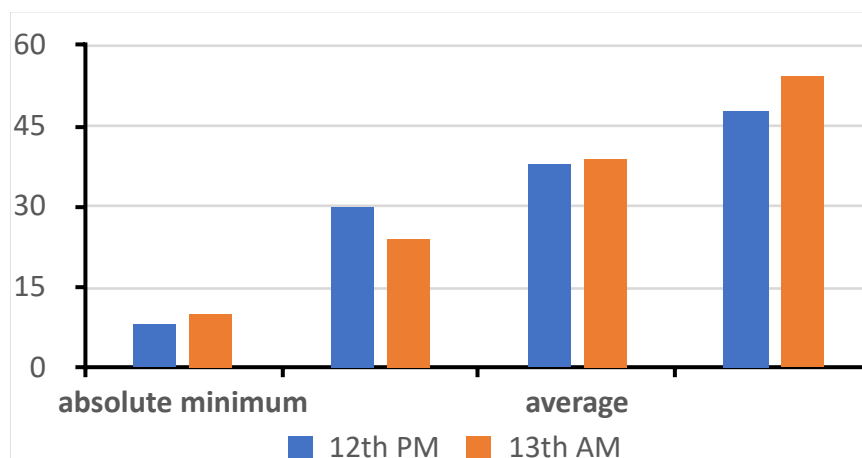


Fig 1. Estimates of kākā numbers present in the Medland area in December 2024.

Date in December	Absolute minimum	Sum of site minima	Average	Sum of site maxima
12th PM	8	30	38	48
13th AM	10	24	39	54

Table 2. Data in Fig 1

Results (June 2025)

The data are in Appendix 2. Fig 2 gives a summary comparable to that in Fig 1., but note the different vertical scale axis. Although kākā numbers were markedly fewer in June, as in December the replicate AM and PM counts were quite close, with overall averages of 17 and 19 respectively. It was noted by OME members that some kākā returned to the Medland Beach gardens on or about August 23rd and were highly active and vocal day and night.

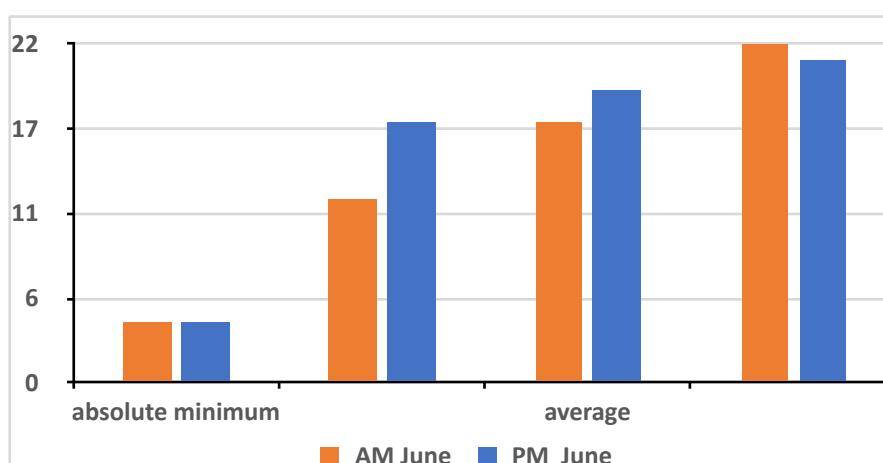


Fig. 2. Estimates of kākā numbers at Medlands in June 2025.

Date in June	Absolute minimum	Sum of site minima	Average	Sum of site maxima
AM	4	12	17	22
PM	4	17	19	21

Table 2. Data in Fig 2. Above.

Discussion and comparative data

It is likely that in the 2024-25 summer the kaka population in the Medlands area was between 30 and 50 birds, with average estimates of 38 and 39. The figures suggest a potential breeding population of 15 - 20 pairs. When numbers had reduced in winter, the average was 17 – 19 birds, implying that c. 53% of the population left the area. This proportion is consistent with the previous ‘island-wide’ estimates (Ogden 2011). Tracked individuals from Glenfern (2013) and Windy Hill (2025) demonstrate temporary relocations on Aotea, but also long flights

followed by residence in winter quarters further south on the mainland. These residence areas on the Hauraki Plains and the Coromandel Ranges are areas with extensive former (and some present) podocarp/broadleaf forest. Kaka tagged around Hamilton and Morrinsville have also visited Aotea (N. Fitzgerald, pers. comm.)

The reasons for these annual migrations to/from Aotea are presumably rooted deeply in the past, when Aotea was connected to the mainland by forested lowlands. They may have been driven by seasonal food availability. Earlier observations on Aotea (Ogden 2011) indicate that native trees, particularly pohutukawa, are important food resources in December while exotic trees, particularly pines and eucalypts, become more significant in winter. Observations made during the counts discussed here are not inconsistent with this. It is not known if older birds predominate in the migrating fraction, but Fig 3 shows that some young birds head south, while the earlier data (Fig 43 in “Birds of Aotea”) was from a mature individual (check Todd Landers, RIMU). More of this sort of ‘individual’ data will be required to put the Aotea kākā population into proper perspective in the wider North Island.

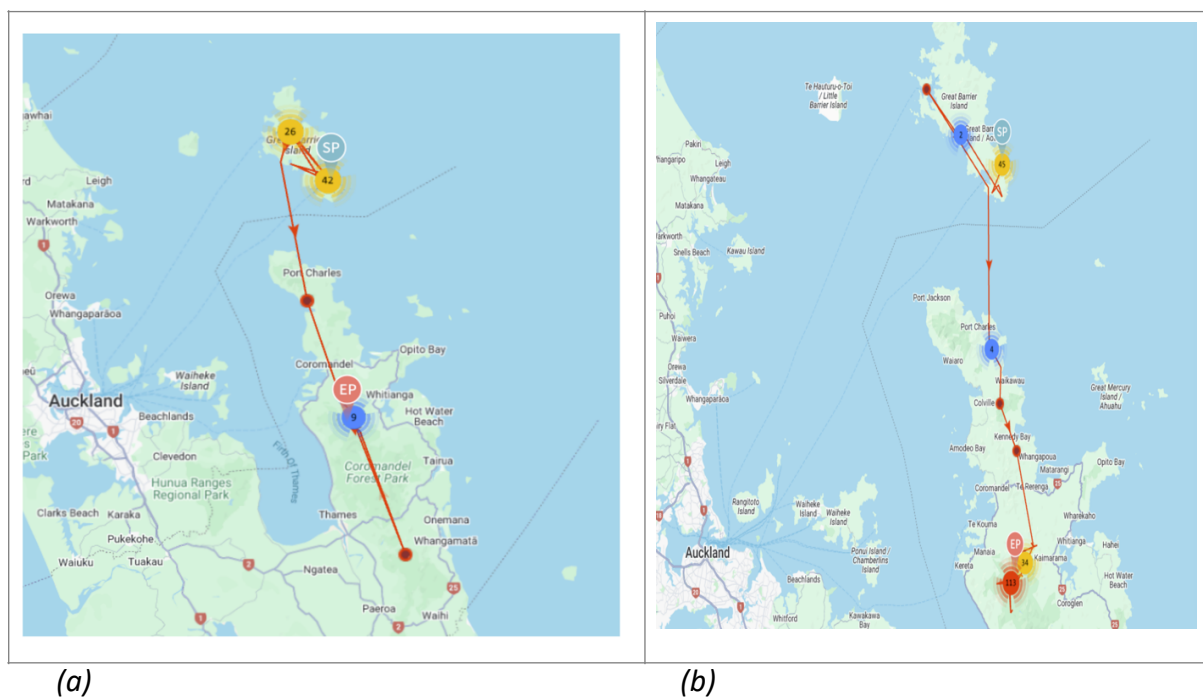


Fig 3. Maps showing the movement of two juvenile kākā radio-tagged at Windy Hill on 06 Jan. 2025. Note the initial Aotea exploration followed by temporary residence in the forested ranges inland from Whitianga (blue or red markers). From Neil Fitzgerald, Landcare Research, with permission). (a) departed Aotea in late March, (b) in early April

The earlier Aotea-wide kākā count data were summarised in Ogden 2011, and in Fig.42 in “Birds of Aotea” 2022. The December results from Medlands, extracted from the full data set, are summarised in Table 3. The average for those earlier counts (16) was less than half that recorded in December 2024 implying an increase in kākā since that date.

Year	Month	Absolute minimum	Total count = Absolute maximum	Average estimate
2007	Dec	18	29	23.5
2010	Dec	6	12	9
2024	Dec	10	54	32

Table 3. Earlier kākā counts at Medlands using the same methodology. Extracted from data in Environmental News #13 (Dec 2007 data); #16 (early Sept. 2008); #24 (Dec.2010).

Kākā counts at Windy Hill Sanctuary from 2008 to 2018 likewise show much variation over the eleven years, but an overall increasing trend. This is backed up by other counts at Windy Hill in May in 2000, 2011 and 2021, which show a significant increase in kaka numbers over those 20 years (Ogden 2021). Additional Windy Hill data are presented in Fig 4.

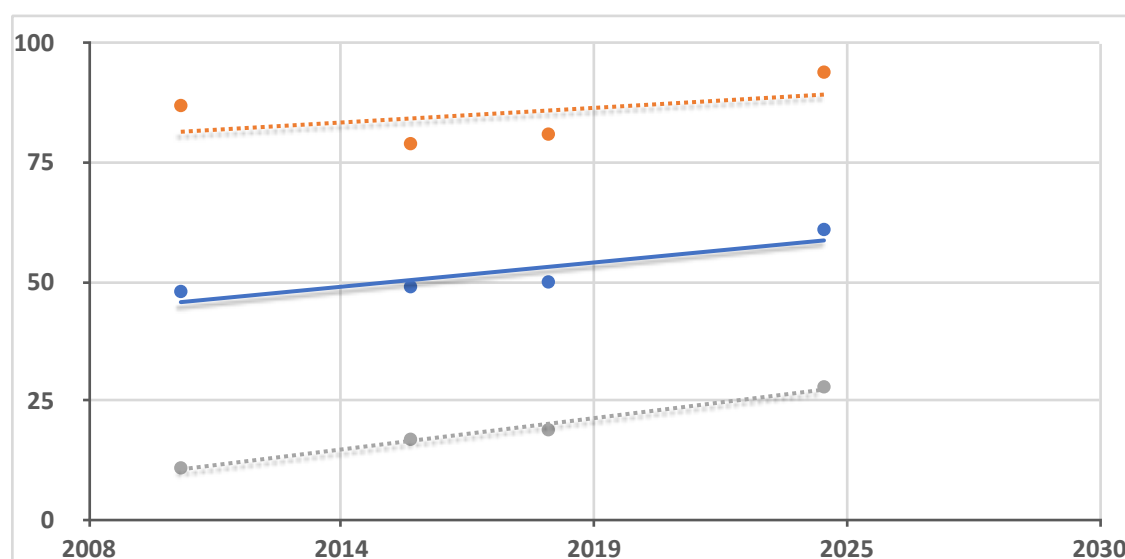


Fig 4. December kākā counts at Windy Hill, (<25m diameter 5-min samples summed over all transects). The solid blue linear trend line represents the average 'location' number, while the red and grey are maxima and minima using similar methodology to that used this study.

The results in Fig 4 were obtained from the raw field data using the Windy Hill transects as equivalent to the 'sites' in this study, and the same calculation protocol. The figures provide a population estimate for the Windy Hill 'location' of c. 30 pairs. This is roughly equivalent to a pair per 26 ha. These data further support the conclusion that the kākā population on Great Barrier/Aotea has been increasing for the last decade or two. It may now be getting to a level where competition for nesting sites in tree hollows will limit the population. There is photographic documentation from the Medlands area of kākā using the same (ground level) nesting burrows as black petrel (and rats!), and other indications of a nest-site shortage. Winter food supplies may also be limiting, especially as pines are being eliminated as an unwanted weed tree.

Recommendations

- (1) It is recommended that this study is repeated at Medlands again, but not annually. Repeated counts are required to assess trends, but each count is influenced by the unique conditions of changed personnel, climate etc on the counting day. This variability can hide the overall trend, which is better demonstrated by more widely spaced counts covering longer time periods (decades!). The important thing is to keep methodology constant. A repeat frequency of 2 – 5 years (over 20 years) is adequate to capture trend while (hopefully!) still retaining some common observers with methodological experience.
- (2) There is still much to learn about kākā breeding success or failure, factors influencing migration, and food requirements (especially during winter). OME should encourage researchers in the area by offering to assist in such research whenever possible. This might be tied in with the kākāriki research/monitoring program.
- (3) OME should consider initiating a nesting-box study in the Medland Valley or the hinterland forested areas currently being controlled for rodents/cats.

Acknowledgements

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References

“Birds of Aotea” (Ogden 2022) was published by the Aotea Great Barrier Island Environmental Trust (AGBET), and can be accessed on their web site (gbiet.org or via facebook or google).

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APPENDIX 1. Summarised data DECEMBER counts from 7 sites (see also Table 1)

Loc	Max/min	12th PM	13th AM	Other data	trees visited
1	max	0	0		
1	min	0	0		
1	avg	0	0	2 often	
2	max	5	4		pines
2	min	5	4		
2	avg	5	4		
3	max	16	22		pine, gums, orchard
3	min	6	10		
3	avg	11	16		
4	max	11	15	12th AM, 3 seen, 17 hd, c. 10 avg, 11 unique birds 12th PM	gum, puriri, kahikatea.
4	min	6	5		
4	avg	8	10		
5	max	7	12	12th AM Rain n=0	Pohutukawa
5	min	4	4	norm = 3 - 5	
5	avg	5	8		
6	max	1	1		
6	min	1	1		
6	avg	1	1		
7	max	8			
7	min	8			
7	avg	8			
SUM MAX		48	54		
SUM MIN		30	24		
SUM AVG		38	39		

APPENDIX 2. Summarised data JUNE counts from 7 sites (see also Table 1)

locatn / counter	max AM	min AM	max PM	min PM	Trees visited/notes
2 / prue	6	3	3	3	
peggy (9 The Lane)	0	0	3	3	
5 / JO	2	1	1	1	puriri
6 / Jenny & Raoul	2	2	2	2	One of PM 2 differs from AM 2 so def. 3 min for day
3 / Lotte	5	1	6	3	pines
4 / Kim & Frances	6	4	5	4	gums
7 / Annamarie	1	1	1	1	
SUM	22	12	21	17	
AVG MAX					21.5
AVG MIN					14.5

