



# CALL COUNT MONITORING OF NORTHLAND BROWN KIWI 2013



Photo: E. Craig

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## **1.0 INTRODUCTION**

### **1.1 Objective**

The objective of this report is to summarise the results of the 2013 call count monitoring of Northland brown kiwi (*Apteryx mantelli*), and to make recommendations for future monitoring.

### **1.2 Background**

As of 2013, there were 40 population clusters of Northland brown kiwi extending across public and private lands. These range from Whakaangi in the Far North to Ponui Island in the south, and include two new founding populations at Marunui and Mataia (Figure 1).

Population trends of Northland brown kiwi have been monitored annually since 1993 using a call count survey method. This monitoring is part of a nationwide kiwi monitoring and recovery programme (McLennan 1992; Robertson 2003). Northland populations of kiwi have declined due to many contributing factors with a key cause of kiwi deaths being attributed to dogs. Many groups in Northland are putting increased effort into predator trapping but also ensuring an effective dog advocacy programme.

Call count surveys are one of the main tool used for assessing trends in kiwi populations and are used in the following Northland scenarios:

- Monitoring the trends in call counts and population size(s) over time at the original 1995 sites (Northern, Eastern, Western, Southern) comprising 24 stations.
- Monitoring the trends in kiwi call counts and populations at the growing number of kiwi management sites throughout Northland.

### **1.3 Northland listening sites**

The 24 original kiwi listening stations that were established at the four geographic areas in 1995 (Pierce & Westbrooke, 2003) are listed in Table 1 (Gartons was added in 1995, the other 23 stations have been listened from since 1993).

**Table 1.** The original Northland kiwi listening stations, grouped by geographic area.

<b>Northern</b>	<b>Eastern</b>	<b>Western</b>	<b>Southern</b>
Diggers Valley	Marsden Cross	Katui	Glenbervie 7A
Takahue	Puketotara	Trounson	Glenbervie 9A
Kaiaka	Rangitane	Cathedral	Marlow Road
Puketi Forest	Waitangi No 12	Waipoua L/Out	Purua N
Puketi Scenic Reserve	Mt Bledisloe	Paerata	Rarewarewa S
Gartons	Tikitikiore		Mimiwhangata
			Sandy Bay

Kiwi protection now happens at many sites throughout Northland (Figure 2; Table 2), and many additional stations have been added to the kiwi listening network (see Appendix 1).

## **2.0 METHODS**

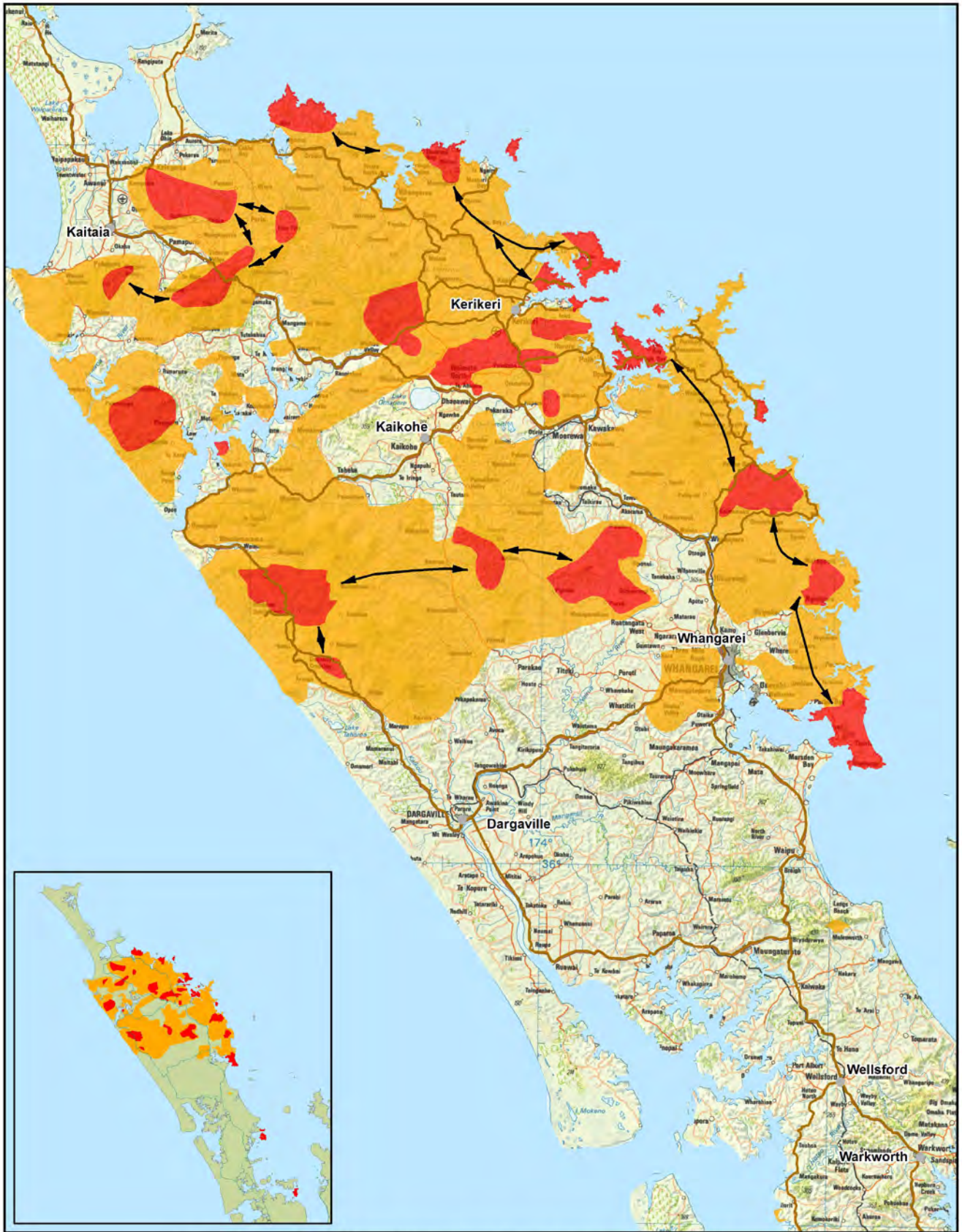
The Northland brown kiwi annual call count survey followed the national kiwi call scheme methodology; listening was carried out during the dark phase of the moon for the first two hours of darkness, for four nights. The ideal kiwi listening conditions are dry and still, so these conditions were favoured wherever possible.

Kiwi listening was carried out from 28 May – 17 June 2013, with a back-up window 26 June – 16 July 2013. After the relatively early listening period for 2012, these dates were similar to previous years.

### **2.1 2013 kiwi listening data**

Call-count data from 2013 were received from the following management areas:

- Whaakangi
- Mahinepua – Radar Hill
- Waimate North
- Puketi Forest
- Russell Peninsula
- Waipoua Forest complex
- Motatau-Marlow
- Purua-Rarewarewa
- Tutukaka
- Whangarei Heads-Bream Head (3 clusters)
- Tawharanui



Approximate Northland kiwi distribution and relative abundance as known in 2013

Department of Conservation  
Te Papa Atahua  
Te Kawanatanga o Aotearoa  
New Zealand Government

0 5 10 20 30 40 50 Kilometres

←→ Potential kiwi corridor  
 High  
 Present

Figure 1. Approximate Northland kiwi distribution and relative abundance as known in 2013.



Northland Kiwi Recovery Project Locations  
2013

0 20 40  
Kilometres

Figure 2. Northland kiwi recovery project locations as known in 2013.

**Table 2.** Key for Northland kiwi recovery projects.

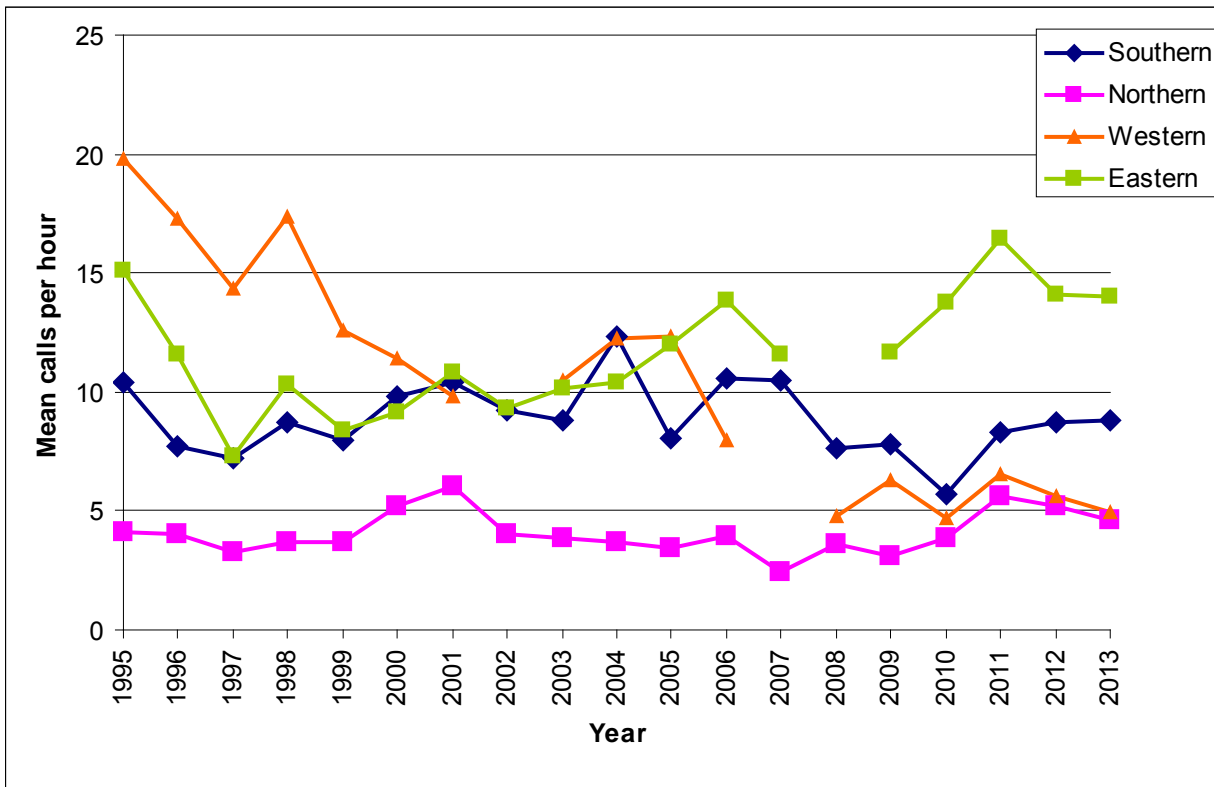
1	Whangarei Heads Landcare Forum
2	Department of Conservation – Whangarei Kiwi Sanctuary
2a	Department of Conservation and Bream Head Conservation Trust
3	Ngunguru – Tutukaka Landcare Coalition
4	Department of Conservation – Mimiwhangata
5	Taupiri and Elliots Bay – NZ Kiwi Foundation
6	Pipiwai – Hancocks Forest
7	Department of Conservation – Trounson Kauri Park
8	Waipoua Forest Trust
9	Department of Conservation – Waipoua
10	Wekaweka Landcare Group
11	Te Mahurehure Roopu Whenua Taonga Trust
12	Opouteke – Hancocks Forest
13	Hupara Landcare Group
14	Department of Conservation, Russell Landcare Group and NZ Kiwi Foundation
15	Waikino Landcare Group
16	Department of Conservation – Waitangi Forest
17	Wharau Road – NZ Kiwi Foundation
18	Kerikeri Peninsular – NZ Kiwi Foundation
19	Purerua Peninsular – NZ Kiwi Foundation
20	Waimate North Landcare
21	Aroha Island Charitable Trust
22	Kauri Cliffs – NZ Kiwi Foundation
23	Takou Were to Mokai Trust/NZ Landcare Foundation
24	Puketī Forest Trust
25	Taupo Bay Landcare
26	Mahinepua, Radar Hill Landcare
27	Whakaangi Landcare Trust
28	Wells Road - Higginson/Khaine
29	Herekino – Sporle/Renwick
30	Honeymoon Valley and Puhoi (Native Forest Restoration Trust)
31	Kohumaru
32	East Herekino – NZ Landcare Foundation
33	Herekino Landcare
34	Humphries Road – Blunden
35	Tawharanui Open Sanctuary (Auckland Council/TOSSI)
36	Kawau Island
37	Motuora Island (Department of Conservation and Motuora Restoration Society)
38	Ponui Island – Massey University
39	Mataia Restoration Project
40	Marunui Conservation Limited

### 3.0 GENERAL PATTERNS

#### 3.1 Northland monitoring trends since 1995

Trends in call count data collected since 1995 at the 24 original listening stations (see under heading 1.3 for list of stations) in the Northern, Eastern, Western and Southern survey areas are graphed in Chart 1 and summary data are presented in Appendix 2.

The results were similar to that observed in 2012; with a very slight upward trend for the Southern cluster, and a slight downward trend for the remaining three clusters (Chart 1). The Southern, Eastern and Northern clusters have continued to show relative stability over time, albeit with fluctuations. Unfortunately the Western cluster has had an overall downward trend since listening began, and as of yet kiwi call count monitoring has not detected any sign of population recovery.



**Chart 1.** Mean annual kiwi call rates per hour for each of the original four Northland monitoring areas 1995 – 2013. The mean for the Northern clusters was estimated with one station missing (Diggers Valley).

#### 3.2 Future of monitoring trends

There is great value in having data since 1995 from the original 24 listening stations in the four different areas. Repeated listening at stations over time provides an indication as to whether a population is stable, increasing or declining (Robertson & Colbourne 2003) and is important information to base management decisions on. It is just as



important to monitor those sites where call counts are dwindling or are absent, as those that are growing. The Department of Conservation (DOC) offices that have stations in their areas should make it a priority to organise each of the original stations to be listened at so the monitoring of these trends can continue. Below are the stations within each of the four areas that have not been listened at in 2012;

## Northern

Diggers Valley (last listened from in 2011)

## 4.0 TRENDS AT MANAGED POPULATIONS

Trends in call counts at managed populations are summarised in Table 3 and graphed in Charts 2 -13. Comments on the trends and recommendations for future listening at each management site are provided below.

**Table 3.** Mean kiwi call count rates from annual monitoring of managed Northland kiwi populations

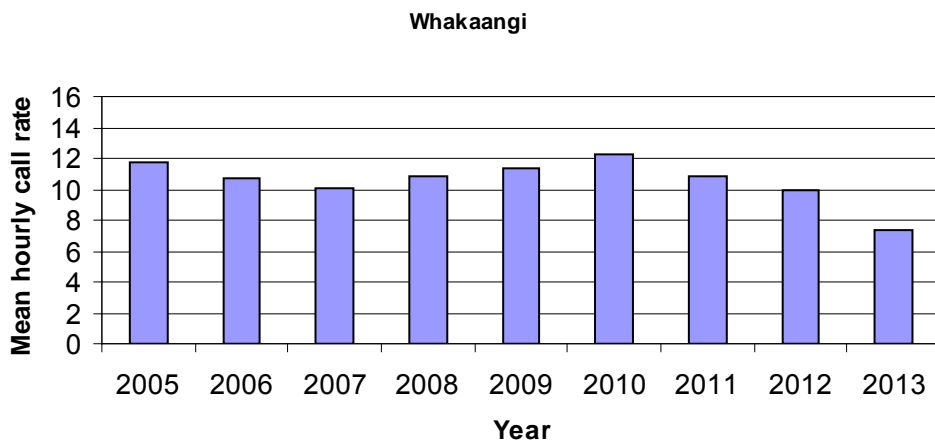
Area	No. Stn	Station No.	2013 Station No.	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Whakaangi	7-9	29, 130-137	131, 132, 134-137	-	-	11.8	10.7	10.1	10.80	11.7	12.2	10.9	9.93	<b>7.30</b>
Mahinepua-Radar Hill	8	83-85,87-89,98,99	83-85,88,99	-	3.60	2.80	4.90	2.70	1.90	2.46	4.65	5.50	10.2	<b>6.65</b>
Waimate North	5	114, 118, 120, 122, 124	114, 118, 120, 122, 124	-	10.5	4.28	-	6.80	6.48	4.68	8.05	8.98	8.43	<b>6.60</b>
Puketi Forest	6	102, 104-106, 108, 111	102, 104-106, 108, 111	-	-	-	2.88	1.15	1.48	3.66	3.00	4.25	4.11	<b>3.60</b>
Russell Peninsula	5	15, 59, 62, 170, 173	15, 59, 62, 170, 173	-	-	4.53	4.01	7.04	5.35	4.61	5.54	11.4	9.77	<b>11.4</b>
Waipoua	4	16-19, 33 (33 added in 2010)	16-19, 33	13.1	15.4	15.8	7.98	8.90	5.69	7.49	4.50	11.8	8.38	<b>6.08</b>
Motatau-Marlow	6	23,34-36,68,129	23, 35, 68, 129	-	-	7.30	7.60	7.50	4.90	6.39	4.54	7.08	8.28	<b>9.13</b>
Purua-Rarewarewa	5	24,25,81,82, 139	24,25,81,82, 139	-	-	9.20	11.1	12.7	10.9	12.4	10.6	12.6	11.8	<b>13.6</b>
Tutukaka	5	125, 126, 142, 143, 144	125, 142*	-	-	6.24	7.30	8.21	8.68	5.67	6.77	7.05	10.2	<b>9.63*</b>
Manaia-Nook	5	47-49,56,71	47-49,56,71	3.10	3.50	2.90	3.90	-	4.60	4.43	6.31	7.25	7.75	<b>6.43</b>
Kauri Mountain	5	54,72-74,141	54,72-74,141	-	-	3.30	2.20	-	2.60	3.02	2.45	4.10	4.00	<b>3.83</b>
Bream Head-Taurikura	5	39, 41, 42, 44, 69 ( 69 added in 2012)	39, 41, 42, 44, 69 ( 69 added in 2012)	-	-	2.50	2.60	2.20	3.20	4.29	2.70	6.59	7.14	<b>8.68</b>
Tawharanui Open Sanctuary	6	161-166	161-166	-	-	-	-	-	-	2.30	0.31	-	2.77	<b>2.65</b>

Note: In previous reports up to 2009: where a single station was not covered, the previous year's results were used. However, some of the stations had not been listened from for several years, so the mean call count rates for the data from 2010 and beyond were calculated only from the relevant stations listened from for that year. \* Note: The 2013 mean kiwi calls per hour data for Tutukaka was derived from only 2 stations

## 4.1 Summary of sites

### 1. Whakaangi

The mean kiwi call count rates for Whakaangi have shown a downward trend for the past four years; from 12.23 calls per hour in 2010 to 7.33 calls per hour in 2013 (Chart 2). Three of the stations that are used to derive the mean for this site were not listened from in 2013 (stations 29, 130, and 133). When the previous overall means for these stations were considered, two were higher and one was lower than the 2013 result (station 29: 5.12 calls/hr, over 14 years of data; station 130: 7.57 calls/hr, over 5 years of data; and station 133: 8.99 calls/hr, over 6 years of data), so the absence of this data alone does not explain the downward trend. It may be that this population has experienced a decrease in the number of calling adults. My recommendation to the Whakaangi community would be to keep up their good work, continue with predator control, and be extra vigilant around encouraging good dog control. Hopefully this downward trend will reverse in the near future. It is worth keeping in mind that 7.33 calls per hour is likely to reflect a healthy sized kiwi population. An exceptional 15 stations were listened from in 2013, of which three had one night of listening; one had two nights of listening; one had three nights of listening; and ten had four nights of listening. This excellent listening effort included seven new stations.



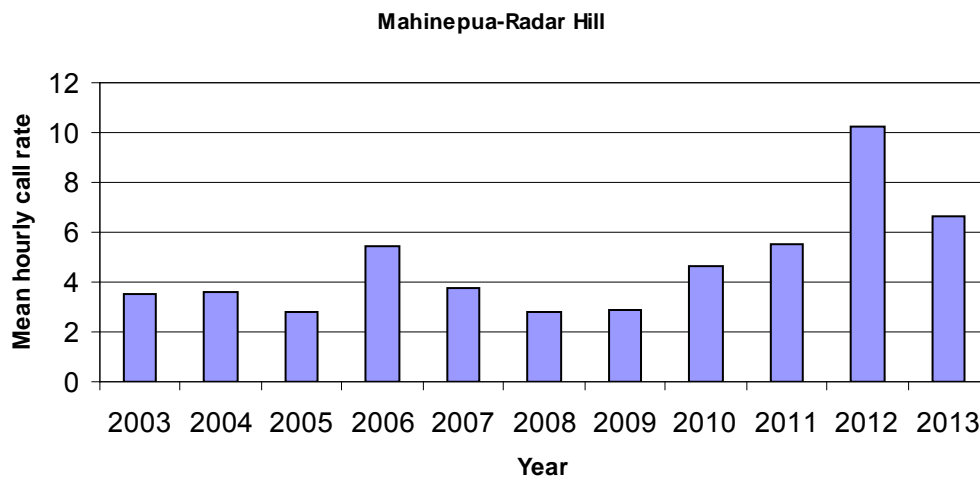
**Chart 2.** Trends in mean call counts at Whakaangi management site.

### Recommendations

- Be extra vigilant around encouraging good dog control.
- Refer to each station by the consistent station number as well as by name.
- Ensure that all kiwi call count data sheets are filled out fully and accurately.

## 2. *Mahinepua-Radar Hill*

After the exceptionally high increase in mean kiwi call counts in 2012 (10.23 calls/hr) at Mahinepua-Radar Hill, the 2013 results are somewhat reduced (6.65 calls/hr; Chart 3). However, it is still the second highest mean call on record. It is likely that the data from 2012 were the anomaly, and the 2013 data give a better indication of the steady increase that is happening in this kiwi population. These data came from six listening stations, each listened for four nights. Thank you very much to this group for the easy to read and interpret data; and for submitting it so soon after the kiwi listening window. Much appreciated!



**Chart 3.** Trends in mean call counts at Mahinepua-Radar Hill management site.

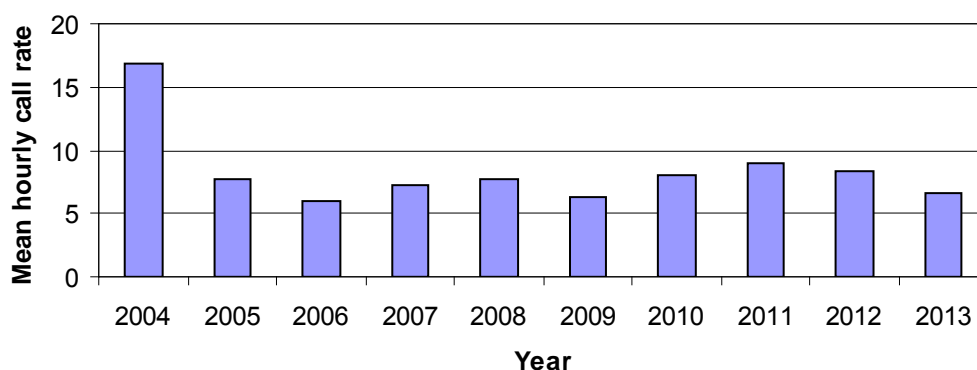
### Recommendations

- Try to maintain consistency in kiwi listeners, ideally the same person for all four nights, and across multiple years.
- Refer to each station by the consistent station number as well as by name.
- Ensure that all kiwi call count data sheets are filled out fully and accurately.

## 3. *Waimate North*

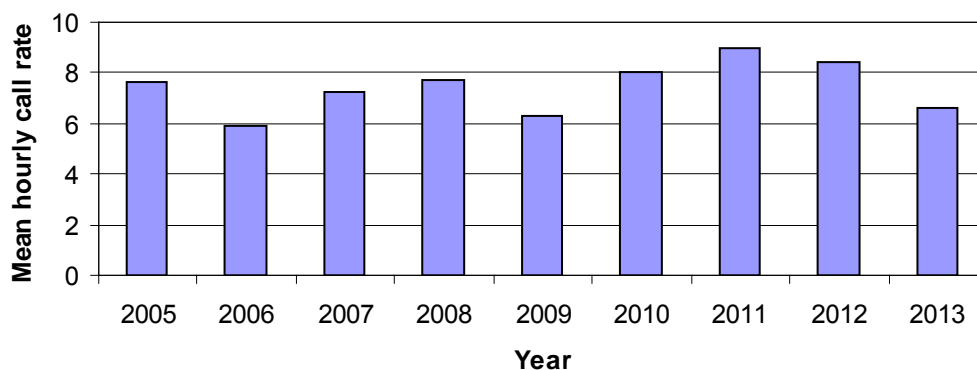
Once again, Waimate North had a decrease in mean call counts from the previous year; from 8.43 calls/hr in 2012 to 6.6 calls/hr in 2013 (Chart 4) This result is still within the range that this site has generated for the past nine years. When the data from 2004 is removed, the natural fluctuation in mean call counts at this site is more apparent (between ~6 and ~9 calls/hr; Chart 4b). Twelve stations were listened from for this site, each of which had four full nights of listening.

### Waimate North



**Chart 4.** Trends in mean call counts at Waimate North management site.

### Waimate North



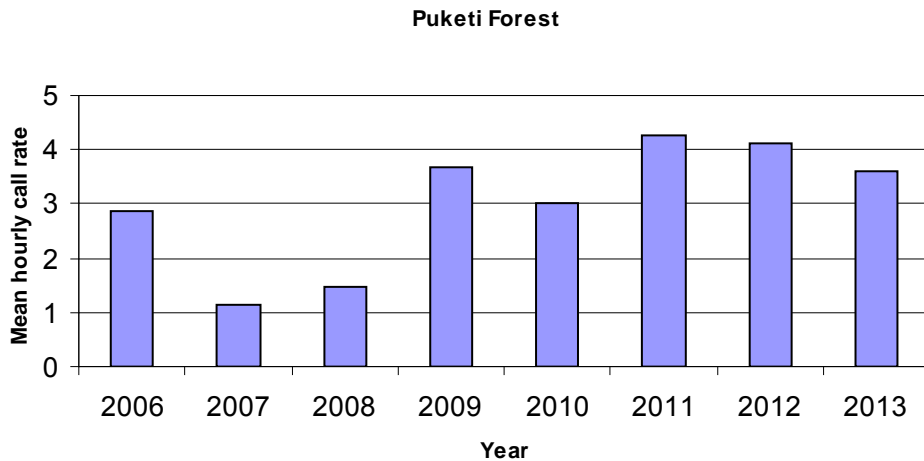
**Chart 4b.** Trends in mean call counts at Waimate North management site, 2004 data excluded.

## Recommendations

- Continue to monitor stations 114, 118, 120, 122, and 124 with extra stations listened from if there are enough listeners available.
- Refer to each station by the consistent station number as well as by name.
- Ensure that all kiwi call count data sheets are filled out fully and accurately.

### 4. *Puketi Forest*

The mean call count rate for Puketi Forest for 2013 (3.6 calls/hr) was similar to the range observed for three of the four previous years (range: 3.6 – 4.25 calls/hr; Chart 5). It is good to see the mean call rate maintaining at this level. A total of 12 stations were listened from, ten for four nights each, and two for two nights each.



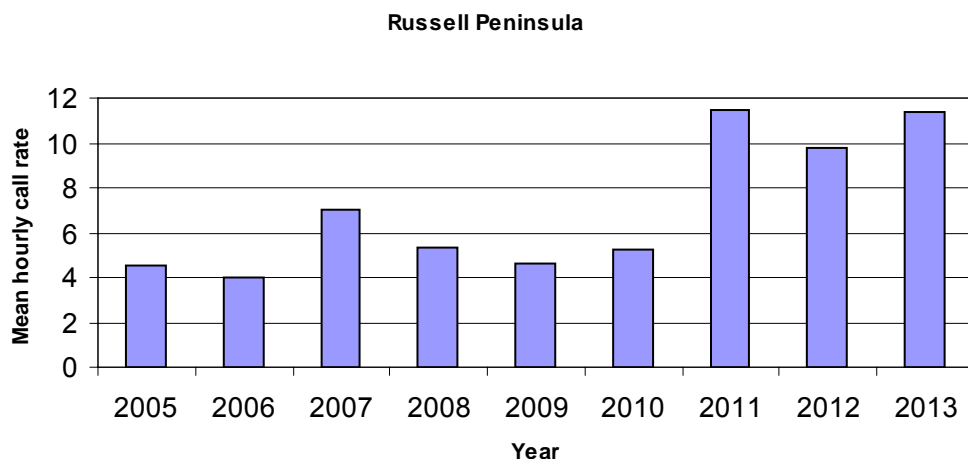
**Chart 5.** Trends in mean call counts at Puketi Forest management site

#### Recommendations

- Reduce listening stations to a core of six (102, 104 -106, 108, 111). Ensure that these stations are listened from for a full four nights.
- Try to maintain consistency in kiwi listeners, ideally the same person for all four nights, and across multiple years.
- Refer to each station by the consistent station number as well as by name.
- Ensure that all kiwi call count data sheets are filled out fully and accurately.

#### 5. *Russell Peninsula*

The mean call count for Russell peninsular is back at the high rate observed in 2011 (11.4 calls/hr; Chart 6). The pattern over the last three years of  $\geq 9.8$  calls/hr is very promising for this site, and is likely indicative of a growing and thriving kiwi population on the ground. This should be a rewarding result for all those doing hard work to protect and restore the kiwi population in this area. Ten stations were listened from in this cluster, all for four full nights.



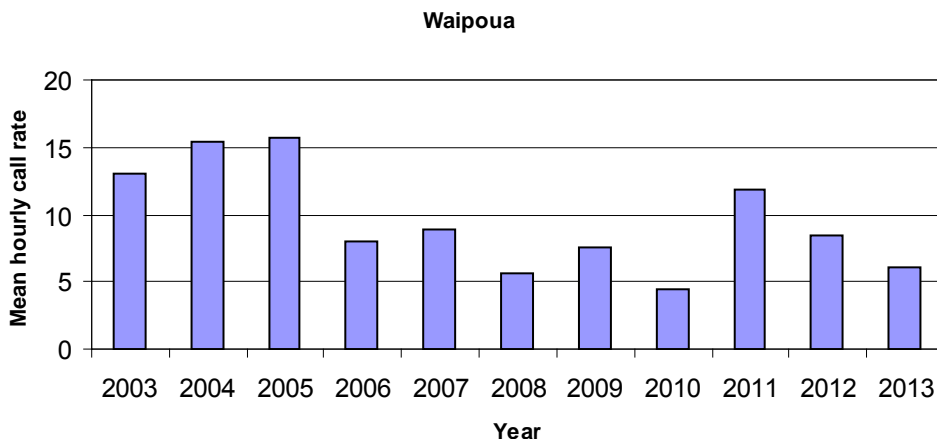
**Chart 6.** Trends in mean call counts at Russell Peninsula management site

## Recommendations

- Continue to monitor stations 15, 59, 62, 170, and 173, with extra stations listened from if there are enough listeners available.
- Refer to each station by the consistent station number as well as by name.
- Ensure that all kiwi call count data sheets are filled out fully and accurately.

## 6. *Waipoua*

The mean hourly call rate for Waipoua continued to show a downward trend; from 8.4 calls per hour in 2012, to 6.1 calls per hour in 2013. The 2013 mean is the third lowest mean from the last 11 years, and a huge drop from a peak of more than 15 calls/hr in 2004 and 2005 (Chart 7). There were eight stations listened from for this cluster; seven of these for four nights, and one (Katui) for two nights only. There were no calls heard from Katui over the two nights, which is distressing given that less than 20 years ago this station had a mean of 47.6 calls per hour (in 1995). Of the five stations used to derive the mean for this site, three had results that were similar to previous years, and two had lower than usual call counts (stn 17: 10.0 calls per hour, 2<sup>nd</sup> lowest on record; stn 33, 6.0 calls per hour, lowest on record). Given the sharp downward trend for this area I would encourage those in the area to be extra vigilant about promoting good dog control.



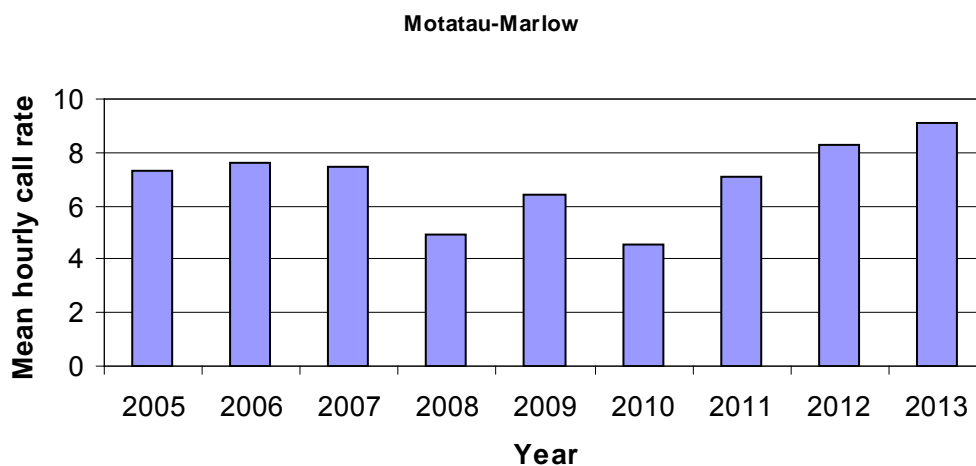
**Chart 7.** Trends in mean call counts at Waipoua management site

## Recommendations

- Maintain annual kiwi listening in the Western area at all the original 1995 stations 16-19. Katui (station 16) should continue to be monitored despite low call counts.
- Refer to each station by the consistent station number as well as by name.
- Ensure that all kiwi call count data sheets are filled out fully and accurately.

## 7. *Motatau-Marlow*

The trend of increasing kiwi call counts observed in 2012 has continued for 2013, with a mean of 9.13 calls per hour heard (Chart 8), a new record for the highest mean number of calls per hour for Motatau-Marlow. It is very positive to see this trend of a growing number of kiwi calls. The mean number of kiwi calls per hour for this cluster was derived from four stations, three with four nights of listening and one with one night of listening.



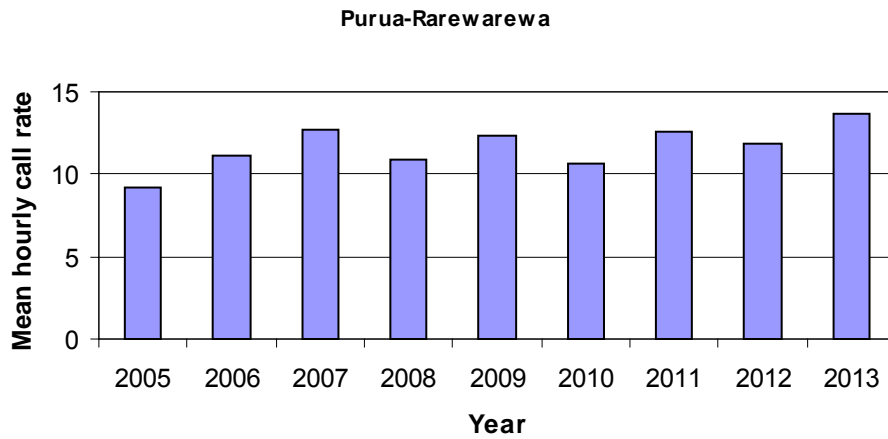
**Chart 8.** Trends in mean call counts at Motatau-Marlow management site

## Recommendations

- Maintain annual kiwi listening at stations 23, 34-36, 68, 129.
- Refer to each station by the consistent station number as well as by name.
- Ensure that all kiwi call count data sheets are filled out fully and accurately.

## 8. *Purua-Rarewarewa*

Once again the mean kiwi call count rate for the Purua-Rarewarewa cluster has been at a high and relatively consistent rate. This is to be expected for this area as the kiwi here are well protected and have been for some time. The 2013 mean was 13.63, which is almost one call per hour greater than the previous high of 12.7 mean calls per hour, recorded in 2007 (Chart 9). One station (139) had many more calls per hour than previously recorded (a mean of 28.63 calls/hr, cf. 9.8-17.75 in previous years), which obviously influenced the upward trend. This was in some way countered by station 81 having a lower than usual result of 7.25 mean calls per hour, more than three calls per hour lower than the previous low of 10.5 mean calls per hour, recorded in 2008. The remaining stations had similar call counts to previous years. The data were derived from five stations which all had four nights of listening.



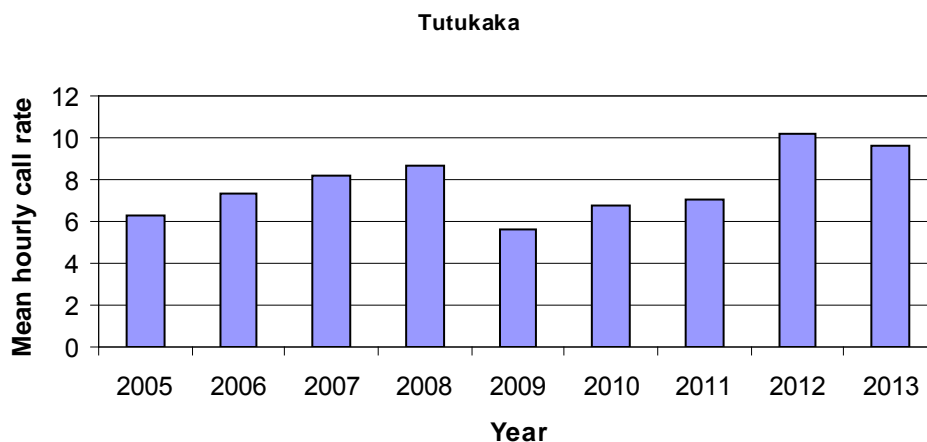
**Chart 9.** Trends in mean call count rates at Purua-Rarewarewa management site

### Recommendations

- Continue to monitor all five stations, especially those where dog predation has occurred.
- Refer to each station by the consistent station number as well as by name.
- Ensure that all kiwi call count data sheets are filled out fully and accurately.

### 9. Tutukaka

I have graphed a result for Tutukaka for 2013, however it should be noted that the mean is derived from only two listening stations (125 and 142; listened from for 3.5 and 4 night respectively), so may well not be indicative of what is happening in the wider Tutukaka area. The 2013 mean is within the range previously observed for this cluster (9.6 calls/hr; previous range 5.7 – 10.2 calls/hr). This rapidly growing population is now well established, and a more thorough kiwi listening survey for 2014 will likely help to demonstrate this.



**Chart 10.** Trends in mean call count rates at Tutukaka management site

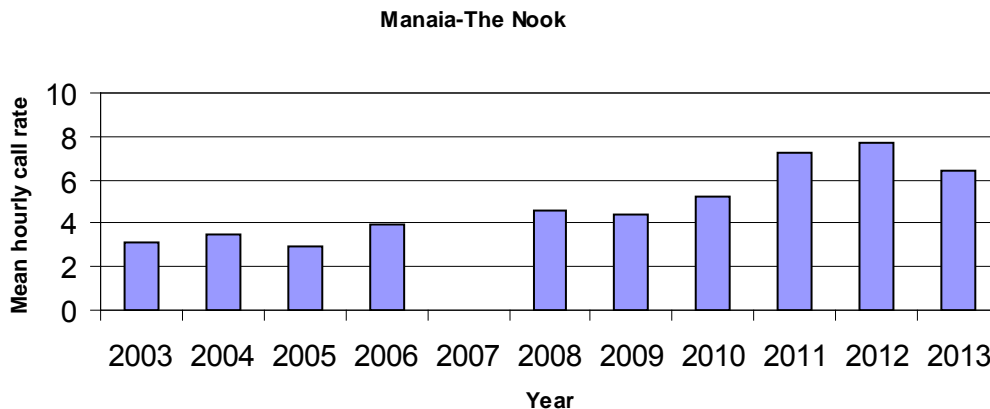


## Recommendations

- Ensure the main listening stations (125, 126, 142, 143, 144) are listened from each year, for the full four nights.
- Refer to each station by the consistent station number as well as by name.
- Ensure that all kiwi call count data sheets are filled out fully and accurately.

### 10. *Manaia-The Nook*

The pattern of an increasing number of kiwi calls per hour since 2009 has unfortunately not continued for this cluster. However, the 2013 mean of 6.43 calls per hour (Chart 11) is the third highest on record, and still an indication of a healthy kiwi population in this area. The data were derived from all 5 stations, each of which had four full nights of listening. A large decrease in the number of calls heard was observed for station 47 (Manaia 1) in 2012 (from 10.3 – 2.9 calls/hr). The 2013 data were similar to that from 2012 (2.75 calls/hr).



**Chart 11.** Trends in mean call count at Manaia-Nook management site

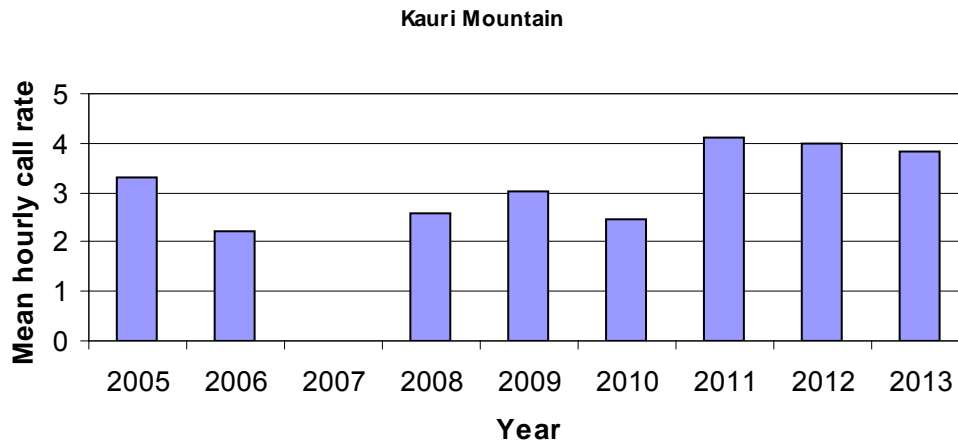
## Recommendations

- Maintain annual kiwi listening at stations 47-49, 56, 71.
- Refer to each station by the consistent station number as well as by name.
- Ensure that all kiwi call count data sheets are filled out fully and accurately.

### 11. *Kauri Mountain*

The kiwi call counts for Kauri Mountain for 2013 were on par with those observed in 2011 and 2012, which were between ~1-2 calls per hour higher than the observations from 2005-2010 (Chart 12). The observed mean in 2013 (3.8 calls/hr) is low in relation to some other clusters, but it is worth keeping in mind that this population is new and

growing, so high call counts may not be observed for many years. The data for this cluster were derived from five stations. Four stations were listened from for four nights, and the remaining one for three nights.



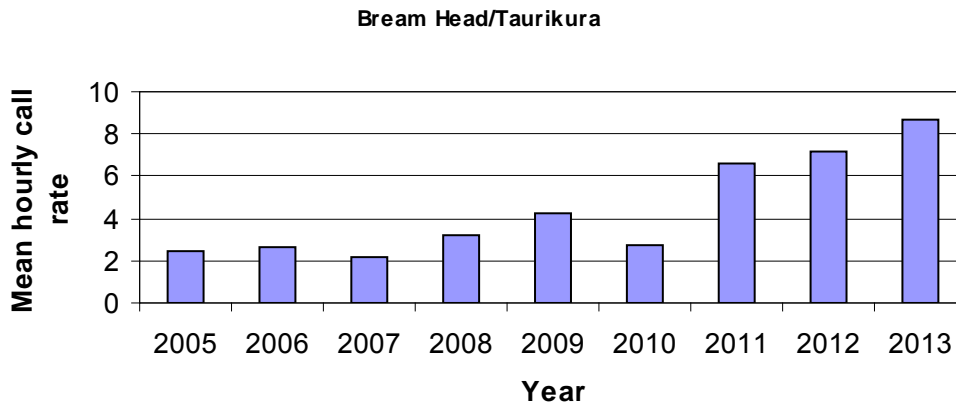
**Chart 12.** Trends in mean call counts at Kauri Mountain management site

#### Recommendations

- Maintain annual kiwi listening at stations 54, 72-74, 141.
- Refer to each station by the consistent station number as well as by name.
- Ensure that all kiwi call count data sheets are filled out fully and accurately.

#### 12. *Bream Head/Taurikura*

It is excellent to see a solid pattern of increasing call counts for the Bream Head/Taurikura area, steadily increasing from 6.6 mean calls per hour in 2011 and 7.1 mean calls per hour in 2012, to a high of 8.7 mean calls per hour for 2013 (Chart 13). This positive result reflects the enormous effort that has gone into, and continues to go into, protecting the kiwi population in this area. The mean was calculated from five stations, each of which were listened from for four nights.



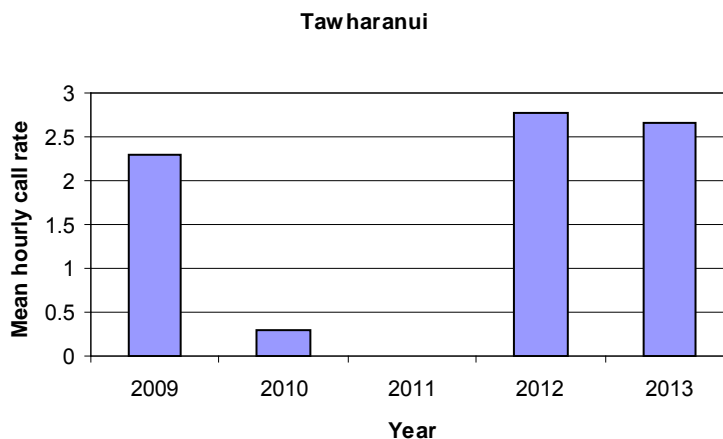
**Chart 13.** Trends in mean call counts at Bream Head/Taurikura management site

### Recommendations

- Maintain annual kiwi listening at stations 39, 40, 41, 42 and 44.
- Refer to each station by the consistent station number as well as by name.
- Ensure that all kiwi call count data sheets are filled out fully and accurately.

### 13. *Tawharanui*

The 2013 mean call count for this cluster (2.65) was similar to that observed in 2012 (2.77), and 2009 (2.3; Chart 14). We are yet to see the projected increase in mean kiwi calls for this cluster, but I am confident it will be observed in future years. The 2013 data were derived from six stations; each listened from for four nights.



**Chart 14.** Trends in mean call counts at Tawharanui Open Sanctuary management site

### Recommendations

- Maintain annual kiwi listening at stations 161-166.
- Refer to each station by the consistent station number as well as by name.
- Ensure that all kiwi call count data sheets are filled out fully and accurately.

#### 14. *Kawau Island*

No data were received from Kawau Island for the 2013 kiwi call count. We hope we will be able to include their data in the 2014 report.

#### 15. *Marunui*

An incredible community effort and years of planning at Marunui (in the Brynderwyns, near Mangawhai) led to fourteen Northland brown kiwi being released there in the 13<sup>th</sup> of April 2013. Kiwi were heard calling there for the first time in the 21<sup>st</sup> of April, and since then both male and female kiwi have been heard calling most nights. What a fantastic achievement! In the future we hope to include kiwi listening data from Marunui in this report.

#### 16. *Mataia*

A second fantastic success story for Northland brown kiwi was their release at Mataia on the Kaipara Harbour. On the 25<sup>th</sup> of May 2013 five kiwi were released, followed by a further eight on the 11<sup>th</sup> of June 2013. As with Marunui, this was the culmination of years of hard work and dedication by the local community and land owners, and the successful release is a real credit to them all. In the future we hope to include kiwi listening data from Mataia in this report.

## **5.0 DISCUSSION AND GENERAL RECOMMENDATIONS**

The overall result of Northland kiwi listening for 2013 was not remarkable, with the call count rates generally being similar to those heard in 2012. Of course some clusters were the exception to this, but overall there were few dramatic changes observed. Although this is possibly disheartening for those who are putting in huge effort and wanting to see population increases every year, I believe that as long as we are not seeing call count rates crashing, there will be natural fluctuations on the long path to many stable kiwi populations across Northland and beyond. So please continue the good work, and I am sure we will once again see the slow and steady increases of recent years.

As predicted, kiwi nesting began later than typical because of the drought over the 2012-2013 summer. The dry conditions meant the kiwi were slower to put on condition, thus were not ready to breed until later in the year. This also means that the hatching chicks will be younger, lighter and more vulnerable when stoat populations peak during

the summer of 2013-2014. If this has an effect on future kiwi listening surveys it will not be apparent for several years. Maintaining a thorough trapping and/or toxin effort in and around kiwi populations will hopefully mitigate some of the effect of the drought.

Kiwi listening data should include the following:

- The station is identifiable to those who enter and analyse the data for this report, and to future listeners who will repeat listening at the same station. This means that each and every kiwi listening card must include the **individual station number**, and this number must not be changed. Each card must also include an up-to-date GPS reference for the site. Both the stations number and GPS reference need to be written on every card, every night;
- There is consistency in kiwi listeners. Ideally this will mean the same person will listen from the same station for each of the four nights, and in subsequent years. If this is not practical, aim for at least having the same person covering the same stations for all four nights;
- Each station needs to be covered for four nights if at all possible. If this can not be finished in the first kiwi listening window it is possible to use the second window. **It is more important that fewer stations are listened from for four nights than more stations for only one or two nights.** This will produce more robust data and will give a more accurate measure of kiwi in your area;
- **Kiwi call cards need to be filled out in full, including all the fields, each night.** If fields are missing or data is not legible it will not be used; (please use pen and write firmly. It is difficult to read the sheets that have been written in pencil then scanned or photocopied)
- Kiwi data needs to be returned to the Whangarei Area Office, in electronic or paper form, **no later than the 31<sup>st</sup> of August in the year in which it was collected.** This should include recording if regular stations are not listened from. Historically, data has been submitted up to a year after listening occurs. This holds up the process of compiling the report, and it not fair to those who handed data in on time. A reduced capacity in the Whangarei Kiwi Sanctuary team means there is no time for someone to chase up missing or incomplete data. If it is not submitted by the 31<sup>st</sup> of August it will not be included in the report.

## 5.1 Other recommendations

- Provide new listeners with adequate training. This not only includes how to identify the difference between male/female kiwi calls; other species calls that may be

mistaken as kiwi; compass use and judging distances but also **how to fill out the forms fully, correctly, and legibly.**

- Try to map the location of calling birds during the four nights of listening. This will help to identify the minimum number of individuals and pairs heard from each station.
- If you add a new station in your area, please identify it very clearly as a new station so that it can be allocated a consistent station number. Please make sure you also provide GPS co-ordinates for the station, a name that will make sense to everyone, and any other identifying or necessary information about the station.
- Please check the station numbers listed in appendix 1. If any of these numbers are not accurate, please let Emma Craig (DOC Northland District Office, ph. 09 4703350, [ecraig@doc.govt.nz](mailto:ecraig@doc.govt.nz)) know as soon as possible.

Thanks to those who followed these recommendations for 2013, your efforts are very much appreciated. Thanks also to everyone who clearly used the station number when identifying their spot, this has made reporting and analysis much easier.

#### **Kiwi listening 2014**

Kiwi listening for 2014 should preferably be carried out from 18 May – 6 June, with a back-up window from 16 June – 5 July.

### **6.0 GENERAL INTEREST**

There were some interesting stories that came in via the kiwi call count sheets this year. One poor listener was out on such a cold night that they required a hot water bottle, thermals, two pairs of trousers, two beanies, two pairs of socks, gloves, a scarf, and a cup of hot tea. Brrrrrr! Listeners at Mahinepua had their work cut out for them, while listening for kiwi calls they also heard: morepork, pukeko, crickets, dogs, possums, cats, cats fighting, cars, kids, cows. What a busy night! Kiwi listening at Marsden Cross yielded a staggering 242 calls over four nights, including 53 calls in one single hour. Wouldn't it be fantastic if we all got results like this?

Information about kiwi listening can be found on the Kiwis for kiwi website <http://www.kiwisforkiwi.org/resources/call-count-monitoring/>.

## 7.0 ACKNOWLEDGEMENTS

Thank you to all the people who carried out kiwi listening in 2013. Participants are listed by station in Appendix 2. Your time and effort in obtaining information about kiwi in your area on those cold winter nights is very much appreciated. Thanks also to local co-ordinators.

## 8.0 REFERENCES

- McLennan, J.A., 1992. Nationwide monitoring of kiwi populations. *DSIR Land Resources Contract Report No 92/91*. Wellington, Science and Research Division, Department of Conservation.
- Pierce, R.J., Westbrooke, I.M. 2003. Call count responses of North Island brown kiwi to different levels of predator control in Northland, New Zealand. *Biological Conservation* **109** (2). pp. 175 – 180.
- Pierce, R.J., Gardiner, C., Moodie, H., Robertson, H.A., Sporle, W. 2006. Sustainable management of brown kiwi and other threatened birds in Northland. *Wildland Consultants Ltd Contract Report No. 1193*. Prepared for Department of Conservation and New Zealand Landcare Trust, Whangarei.
- Robertson, H.A. 2003. Kiwi Recovery Plan 1996-2006. Wellington, Department of Conservation.
- Robertson, H.A., Colbourne, R. 2003. Kiwi (*Apteryx* spp.) Best Practice Manual. Wellington, Department of Conservation.

**APPENDIX 1. Mean call count data for all Northland stations 1995-2013.**

Stn No.	Station name	1995 Mean	1996 Mean	1997 Mean	1998 Mean	1999 Mean	2000 Mean	2001 Mean	2002 Mean	2003 Mean	2004 Mean	2005 Mean	2006 Mean	2007 Mean	2008 Mean	2009 Mean	2010 Mean	2011 Mean	2012 Mean	2013 Mean
<b>Northern</b>																				
1	Diggers Valley	1.1	2.4	4.1	2.5	2.1	3.3	4.1	3.75	3	3.9	3.9	2.7	1.3	2	1.67	-	2.5	-	-
2	Takahue	4.3	3.5	5.5	5.4	6.3	8.4	7.9	4.5	3.3	4.75	5.3	5	3.6	4.9	3.13	4.75	11.38	6.88	-
4	Gartons	5.6	5	1.2	-	0.8	2	8.6	-	1.5	4.1	4.9	7.1	1.5	1.25	0	0.13	0.25	0.75	<b>0.25</b>
5	Kaiaka	1.7	1.3	2.4	3.4	1.6	3.5	3	2.1	1.9	3.75	2.8	1.5	0	0.75	-	1.63	1.13	0.25	<b>1.60</b>
7	Puketi	6.6	5.4	2.1	3	6	7.6	6.4	3.5	5	3.4	1.5	2.3	0.8	3.9	4	6.88	9.38	6.25	<b>6.25</b>
8	Puketi SR	5.4	6.5	4.4	4	5.1	6.5	6.1	6.4	8.25	9.4	2.3	5.1	7.4	8.9	9	7.88	9	11.75	<b>9.75</b>
3	Lightning Hill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.5	<b>13.50</b>
218	Wells Rd, Kaiaka, Kaitaia	-	-	-	-	-	-	-	-	-	-	-	-	-	0.75	-	-	-	-	-
<b>Whakaangi</b>																				
130	Whakaangi 1	-	-	-	-	-	-	-	-	-	-	9	10.4	4.6	7.6	6.33	-	-	-	-
131	Whakaangi 2	-	-	-	-	-	-	-	-	-	-	14.9	25	15.3	20.75	17.13	16.13	9.38	8	<b>4.75</b>
132	Whakaangi 3	-	-	-	-	-	-	-	-	-	-	13.5	14.6	9	10.75	12.17	12.17	5.5	3.13	<b>6.75</b>
29	Whakaangi 4	-	-	4.5	-	2.9	1.9	6.25	3.75	4.9	6.6	2.3	6.8	6.3	4.9	5.75	9.83	5	-	-
133	Whakaangi 5	-	-	-	-	-	-	-	-	-	-	9.8	13.8	10.1	-	8.25	-	7.88	4.13	-
134	Whakaangi 6	-	-	-	-	-	-	-	-	-	-	6	7.3	3.9	-	9.5	7	-	-	<b>4.50</b>
135	Whakaangi 7	-	-	-	-	-	-	-	-	-	-	21.9	28	24.5	27	25.88	21.88	23.38	19.13	<b>11.88</b>
136	Whakaangi 8	-	-	-	-	-	-	-	-	-	-	14.1	29	11.8	18.8	15.25	10.5	20	15.25	<b>12.75</b>
137	Whakaangi 9	-	-	-	-	-	-	-	-	-	-	4.8	8.4	5.6	6.5	4.88	8.13	5	-	-
138	Whakaangi 10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.75	4	5.83	4.33	<b>3.75</b>
140	Langridge House	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.63	7.63	<b>3.88</b>
<b>Mahinepua-Radar Hill</b>																				
90	Mahinepua 0	-	-	-	-	-	-	-	-	-	-	-	-	2.9	2.9	3.38	3.63	4	7.13	<b>4.38</b>
83	Mahinepua 1	-	-	-	-	-	-	-	-	3.5	-	2.6	4.1	3.5	2.6	2.38	2.25	3.13	7.5	<b>6.75</b>
84	Mahinepua 2	-	-	-	-	-	-	-	-	4.2	0.8	2.3	4.8	4.3	2.75	3.25	3.25	4.25	6.75	<b>4.75</b>
85	Mahinepua 3	-	-	-	-	-	-	-	-	5.6	4.75	4	5.5	5.4	3.25	5.88	5.25	5.25	10.25	<b>5.00</b>
88	Mahinepua 4	-	-	-	-	-	-	-	-	6.1	4.1	3	7.8	4.7	4.1	9.5	4.75	5.38	10.63	<b>7.13</b>
87	Mahinepua 5	-	-	-	-	-	-	-	-	-	-	-	-	2.4	0.9	2	-	-	-	-



Stn No.	Station name	1995 Mean	1996 Mean	1997 Mean	1998 Mean	1999 Mean	2000 Mean	2001 Mean	2002 Mean	2003 Mean	2004 Mean	2005 Mean	2006 Mean	2007 Mean	2008 Mean	2009 Mean	2010 Mean	2011 Mean	2012 Mean	2013 Mean
86	Mahinepua 6	-	-	-	-	-	-	-	-	1	2.5	2.3	-	0.4	0.75	1.25	-	-	-	-
89	Mahinepua 7	-	-	-	-	-	-	-	-	0.9	5.9	1.8	4.8	1.9	0.4	-	-	-	-	-
181	Mahinepua 8	-	-	-	-	-	-	-	-	-	-	-	-	0.8	0.4	-	-	-	-	-
182	Mahinepua 9	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.1	-	-	-	-	-
183	Mahinepua 10	-	-	-	-	-	-	-	-	-	-	-	-	1.6	1.25	-	-	-	-	-
184	Mahinepua 11	-	-	-	-	-	-	-	-	-	-	-	-	2.9	1.25	1.25	-	-	-	-
98	Mahinepua 12	-	-	-	-	-	-	-	-	-	3.5	2.3	3.8	2.5	3.4	2.88	-	-	-	-
99	Mahinepua 13	-	-	-	-	-	-	-	-	-	3.9	3.8	7.4	7.3	5	9.38	7.75	9.5	16	<b>9.63</b>
92	Mahinepua 14	-	-	-	-	-	-	-	-	-	-	-	-	0.6	1.25	1.13	1.38	0.75	-	-
91	Mahinepua 15	-	-	-	-	-	-	-	-	-	-	-	-	1	1.1	1.63	1.75	3.13	-	-
93	Mahinepua 16	-	-	-	-	-	-	-	-	-	-	-	-	1.3	6	2	2.63	5.25	-	-
94	Mahinepua 17	-	-	-	-	-	-	-	-	-	-	-	-	2.5	4.9	5	3.38	6.88	-	-
95	Mahinepua 18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.75	-	-	-	-
<b>Bay of Islands</b>																				
146	Kauri Cliffs 1 (Pink Beach)	-	-	-	-	-	-	-	-	9	-	-	4	4.25	1.75	5	6.5	-	-	-
147	Kauri Cliffs 2 (Puriri)	-	-	-	-	-	-	-	-	-	-	-	1.5	3	2.75	1	-	-	-	-
10	Marsden Cross	20.9	18.3	9.6	16.7	14.5	19.9	21.9	17.9	18.5	22	19.3	30.6	23	-	20.25	24.5	34.88	30.86	<b>30.25</b>
148	Wiwiki Beach	-	-	-	-	-	-	-	-	-	-	-	32.1	-	-	-	-	-	-	-
149	Mataka Stn Gate, Purerua	-	-	-	-	-	-	-	-	-	-	-	4	4.1	8.25	6.75	18.5	3.25	10	<b>6.88</b>
150	McKenzie Rd, Purerua	-	-	-	-	-	-	-	-	-	-	-	9.5	12.1	10.25	5	7.5	-	2.5	-
151	Mtn Landing (Lot 30) Purerua	-	-	-	-	-	-	-	-	-	-	-	12.3	10.2	18.75	12.6	25	22.75	20.25	-
11	Puketotara	10	13.8	8.1	11.6	9.7	8	-	2.5	7.5	3.6	-	7.1	13.7	10.6	6.17	9.5	9.25	9.13	<b>9.75</b>
152	Waitoto Block	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-
12	Rangitane	14	5.6	8.4	10.5	7.5	8.4	11.5	10.5	8.6	8	8	11.5	9.1	15.9	15.25	11.38	10.75	12.75	<b>11.25</b>
153	Aroha Island	-	-	-	-	-	-	-	-	6.88	-	-	12.6	-	-	-	-	-	-	-
154	Napia Bay	-	-	-	-	-	-	-	-	-	8.7	5.5	4.6	4	4.5	3.25	5.6	7.5	3.6	<b>4.00</b>
155	Stirlings Quarry	-	-	-	-	-	-	-	-	7.3	9.8	13	12.4	10.2	8.3	4	8.5	-	-	-
97	Kurapari Rd	-	-	-	-	7.1	-	-	-	12.7	8.8	9.25	10.4	5.5	6	6.75	4.75	2.33	5.5	<b>7.00</b>
13	Waitangi No 12	7.6	7.6	6.3	8.9	5.3	7.1	11.5	15.1	18.4	13.75	11.5	15.5	6.3	-	-	-	-	6.75	<b>7.38</b>
14	Mt Bledisloe	27.1	10.9	5.5	7.9	8.8	5.1	6.4	6.75	4.9	8.9	9.1	5.5	9.6	11.25	8.25	11.38	13.71	7.38	<b>10.75</b>

Stn No.	Station name	1995 Mean	1996 Mean	1997 Mean	1998 Mean	1999 Mean	2000 Mean	2001 Mean	2002 Mean	2003 Mean	2004 Mean	2005 Mean	2006 Mean	2007 Mean	2008 Mean	2009 Mean	2010 Mean	2011 Mean	2012 Mean	2013 Mean
138	Hupara	-	-	-	-	-	-	-	-	-	25.6	19.3	27.8	-	-	-	-	-	-	-
185	Akeake Reserve, Kerikeri	-	-	-	-	-	-	-	-	-	-	-	-	-	2.75	0.5	-	6.00	-	-
186	Cunningham Gardens, Aroha Island	-	-	-	-	-	-	-	10.75	8.63	-	-	-	-	-	-	-	8.17	-	-
187	Gaitens, Rangitane Rd, Kerikeri	-	-	-	-	10	-	12.8	6.33	6.88	10	12	12.63	14.7	10.5	8	7.25	7.50	4.75	-
188	Blacksmiths Bay (east), Kerikeri (Lex Rennes)	-	-	-	-	-	-	-	10.25	10.3	7.67	8.26	6.20	6	8	4.5	6.88	8.75	6.40	<b>0.00</b>
189	Doves Bay, Kerikeri (Lockyer)	-	-	-	-	4.17	-	-	2	-	3.78	2.46	-	-	4.5	7.5	15.25	18.25	-	-
190	Rangitu, Opito Bay Road, Kerikeri	-	-	-	-	-	-	-	-	-	-	-	-	9.1	16	15.5	15.5	-	-	-
191	Tikorangi Road, Opito Bay, Kerikeri	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5	4.5	4	-	-	-
192	Kraus, Hansen Rd, Purerua	-	-	-	-	-	-	-	-	-	3.33	-	-	-	-	11	-	-	-	-
193	Mataka Beach, Mataka Station, Purerua	-	-	-	-	-	-	-	41.5	-	30	39	32.67	24.5	41.75	30	41.25	-	30.83	<b>30.88</b>
194	Mataka Station, Ninepin Track, Purerua	-	-	-	-	-	-	-	-	-	30	-	-	-	50.75	43.5	-	18.00	-	<b>24.00</b>
195	Mountain Landing (Lot 30) Wharengaere, Purerua	-	-	-	-	-	-	-	-	-	-	-	12.25	10.2	18.75	12.6	25	22.75	20.25	<b>13.25</b>
196	Mountain Landing, Mataka Ridgeline, Purerua	-	-	-	-	-	-	-	-	-	-	-	7.50	10.1	18	25.5	14.25	22.00	-	-
197	Mountain Landing, Paddle (Entrance), Purerua	-	-	-	-	-	-	-	-	-	-	-	8.50	10.2	12.5	14.25	17	-	-	-
198	Mountain Landing, Poraenui Point	-	-	-	-	-	-	-	-	-	-	-	-	7.3	14.5	16	13.75	-	-	-
199	Paoneone	-	-	-	-	-	-	-	16.67	-	-	-	-	-	-	-	-	37.60	-	<b>11.25</b>
200	Pattersons Big Hill	-	-	-	-	-	-	-	9	-	-	30.5	-	4.01	20.5	70.25	33	35.50	-	-
201	Pattersons, Rocky Bay	-	-	-	-	-	-	-	-	-	-	-	-	-	16.5	19.5	17.67	11.67	-	-
202	Tapuaetahi	-	-	-	-	-	-	-	-	-	-	-	5.00	-	3	3.25	16.5	-	-	<b>7.38</b>
203	Wharengaere Bay	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.5	15.50	-	-
204	Wiroa Station	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5	6.67	-	-
205	Wiroa Station Hill 11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	-	-	-
206	Maintenance Facility, Kauri Cliffs45	-	-	-	-	-	-	-	-	-	-	-	-	-	6.5	5	13.13	-	-	-
207	Waiaua Bay, Matauri X	-	-	-	-	-	-	-	-	2.25	-	-	0.5	0.5	-	-	-	-	-	-
208	Waterfall, Kauri Cliffs, Takou Bay	-	-	-	-	-	-	-	-	6	-	-	5.5	2.25	4.5	3.5	-	-	-	-
209	Hikuria Rd (end)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
212	Drivers Whitehills farm	-	-	-	-	-	-	-	-	-	-	-	-	-	7.5	2	8	8.00	7.88	-
213	Landcorp Takou Kiwi covenant	-	-	-	-	-	-	-	-	-	-	-	-	-	8.5	0.75	3	-	-	-

Stn No.	Station name	1995 Mean	1996 Mean	1997 Mean	1998 Mean	1999 Mean	2000 Mean	2001 Mean	2002 Mean	2003 Mean	2004 Mean	2005 Mean	2006 Mean	2007 Mean	2008 Mean	2009 Mean	2010 Mean	2011 Mean	2012 Mean	2013 Mean
214	Maori Block	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	3.5	-	-	-
215	Otaha Station (south end)	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	3	-	-	-
216	Just past Clinton's	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
217	End of Te Ra Rd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.25	-	-	-
219	Achtzehener, Bulls Gorge, Kerikeri	-	-	-	-	-	-	-	-	-	-	-	7.0	-	6	11.75	5.75	2.75	-	<b>1.88</b>
220	Airstrip Rd (Baigent-Mercer)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	3.25	-
221	Airstrip Rd (Sharp)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-
222	Candy Bush, Puketi Road, middle ridge	-	-	-	-	-	-	-	-	-	-	-	-	-	0.75	6	-	-	-	-
223	Candy Bush, Puketi Road, red cliffs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.5	-	-	5.75	-
224	Candy Bush, Puketi Road, white/yellow path	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	-	-	11.00	-
225	Kauri Hills, Totara North	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.00	6.25	-
226	Poultons, Kerikeri River, Mangaparerua Rd	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-	6.5	-	5.38	<b>4.63</b>
227	Puketotara Rd = 709	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-
228	Puketotara Rd = Kearney	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	-	-	-
229	Waipapa Rd West, Kerikeri (Anne C.)	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-
230	Waipapa Rd West, Kerikeri (Isabella C.)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.6	0.5	-	-	-	-
231	Waitoto, 500m west of Rhyolitic dome, Mangaparerua	-	-	-	-	-	-	-	-	-	-	-	4.0	-	-	-	-	-	-	-
232	Waitoto, Rhyolitic dome, Mangaparerua Road	-	-	-	-	-	-	-	-	-	-	-	4.5	4.6	8	5	-	-	-	-
233	Wharau Rd, Kerikeri (Manning)	-	-	-	-	-	-	-	-	-	-	-	-	3.6	2.5	-	5.5	3.50	4.50	-
234	Wharau Rd, Kerikeri (Starr)	-	-	-	-	-	-	-	-	-	-	-	-	6.25	7	-	-	-	-	-
<b>Puketi Forest</b>																				
102	Bramley's Rd	-	-	-	-	-	-	-	-	-	-	-	2.5	0.5	2	2	2.75	2.75	2.5	<b>2.00</b>
103	Pirau Ridge	-	-	-	-	-	-	-	-	-	-	-	0	-	0	1	0.5	1.25	1.25	<b>1.38</b>
104	Pond	-	-	-	-	-	-	-	-	-	-	-	4.5	1	3.75	5	3.5	8	6.88	<b>4.63</b>
105	Pudding Bowl Hill	-	-	-	-	-	-	-	-	-	-	-	0.3	0.75	1.125	2.04	2	1	-	<b>3.00</b>
106	Takapau Track	-	-	-	-	-	-	-	-	-	-	-	0	1	0	2.5	3.25	2.38	2.57	<b>1.38</b>
107	Takapau/Pirau Rd Junction	-	-	-	-	-	-	-	-	-	-	-	0.5	-	1	2.75	1.38	3.5	1.5	<b>1.13</b>
108	Totara Ridge	-	-	-	-	-	-	-	-	-	-	-	5.75	-	0.75	7.13	3.5	6.13	4.63	<b>5.88</b>
109	Waihoanga Gorge	-	-	-	-	-	-	-	-	-	-	-	2	-	3.75	5.38	3.25	6.25	4.5	<b>4.25</b>

Stn No.	Station name	1995 Mean	1996 Mean	1997 Mean	1998 Mean	1999 Mean	2000 Mean	2001 Mean	2002 Mean	2003 Mean	2004 Mean	2005 Mean	2006 Mean	2007 Mean	2008 Mean	2009 Mean	2010 Mean	2011 Mean	2012 Mean	2013 Mean	
110	Waihoanga Gorge 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	2.5	1.5	-	<b>4.50</b>	
111	Walnut	-	-	-	-	-	-	-	-	-	-	-	4.25	2.5	1.25	3.29	3	5.25	4	<b>4.75</b>	
112	Stoat line 9 – Puketi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.13	4	<b>3.63</b>	
188	Puketi Nature Trail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.13	-	<b>3.25</b>	
<b>Russell Peninsula</b>																					
15	Tikitikiore	10.8	13.5	6.1	6.1	4.5	6.5	2.9	3.3	3.1 (12.3)	6.1 (7.1)	3.38	13	7.9	-	12.25 (5.25)	12.25	13.5	17.75	<b>14.50</b>	
59	Opito Farms	-	-	-	-	-	5.7	-	9.9	-	-	4.63	13.1	6.1	9.13	6.75	4.25	5.25	8.13	<b>6.88</b>	
60	Flagstaff/Te Maiki	-	-	-	-	-	3.7	1.3	1.3	-	-	-	4.3	-	6.38	-	2.5	4.25	3.88	<b>3.25</b>	
62	Uruti Rd	-	-	-	-	-	10.8	7.6	10.5	-	-	7.63	14.4	7.9	5	12.75	12.25	12.75	11.5	<b>13.88</b>	
61	Milne Ct	-	-	-	-	-	-	-	-	-	-	-	6.3	5.8	-	-	-	-	-	-	
156	Russell Heights	-	-	-	-	-	-	-	-	-	-	-	9.8	4.8	5	2.5	5	-	-	-	
171	Mace/Farmer	-	-	-	-	-	-	-	-	-	-	-	-	-	6.63	4.75	17.63	10.38	6.25	<b>4.00</b>	
172	Pipiroa Bay	-	-	-	-	-	-	-	-	-	-	-	-	-	0	3	2	2.75	6	<b>5.38</b>	
173	Shortlands	-	-	-	-	-	-	-	-	-	-	2	-	2.5	1.38	1.13	1.25	-	2.33	<b>1.13</b>	
170	Nikau Block	-	-	-	-	-	-	-	-	-	-	12.88	10	-	1	3	8.88	14.25	9.13	<b>20.75</b>	
174	Johnsons	-	-	-	-	-	-	-	-	-	-	-	-	9.75	12.75	-	1.63	11.38	8.5	<b>10.13</b>	
176	Jarvis	-	-	-	-	-	-	-	-	-	-	5.38	4.3	-	-	-	-	-	-	-	
177	Soloman's Gate	-	-	-	-	-	-	-	-	-	-	11.5	6.38	-	-	-	-	5.38	6.25	<b>4.88</b>	
210	Paroa Bay, Russell													4.3						-	
211	Eagles Nest																4.5			-	
<b>Waimate North</b>																					
113	W1	-	-	-	-	-	-	-	-	-	-	23.5	15.8	24.75	-	-	25.5	25.75	23.63	23.13	<b>23.75</b>
114	W2	-	-	-	-	-	-	-	-	-	-	12.25	7	9.5	7.9	11.5	5.75	14.5	11.63	12.5	<b>7.13</b>
115	W3	-	-	-	-	-	-	-	-	-	-	14.9	-	-	-	-	-	-	1	0	<b>1.00</b>
116	W4	-	-	-	-	-	-	-	-	-	-	9.4	10.5	6	-	8	-	8.5	13.5	10.5	<b>10.88</b>
117	W5	-	-	-	-	-	-	-	-	-	-	5.9	1.83	3	-	-	-	-	-	-	-
118	W6	-	-	-	-	-	-	-	-	-	-	22.3	11	5.7	8.5	7.3	9.13	5.63	10.63	8	<b>7.50</b>
119	W7	-	-	-	-	-	-	-	-	-	-	5.3	6.5	-	3.1	-	-	-	-	-	-
120	W8	-	-	-	-	-	-	-	-	-	-	13.75	2.83	1	8.1	8	5.5	8.13	9.13	11.88	<b>9.13</b>

Stn No.	Station name	1995 Mean	1996 Mean	1997 Mean	1998 Mean	1999 Mean	2000 Mean	2001 Mean	2002 Mean	2003 Mean	2004 Mean	2005 Mean	2006 Mean	2007 Mean	2008 Mean	2009 Mean	2010 Mean	2011 Mean	2012 Mean	2013 Mean
121	W9	-	-	-	-	-	-	-	-	-	5.2	3.5	2.125	2.3	3.5	-	-	-	-	<b>1.00</b>
122	W10	-	-	-	-	-	-	-	-	-	-	-	7.33	8.3	5.9	5.25	4.13	7.25	5.13	<b>4.13</b>
123	W11	-	-	-	-	-	-	-	-	-	7.07	7.75	2	-	-	-	-	-	-	-
124	W12	-	-	-	-	-	-	-	-	-	18.9	9.75	6.1	3.6	5.9	6	7.88	6.25	4.63	<b>5.13</b>
178	W13	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5	2.8	-	-	-	-
127	W14	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.88	0.5	0	-	-
128	W16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.9	2.17	-	-	-
191	Hupara Land Care 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31.25	<b>15.13</b>
245	Hupara Land Care 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<b>20.88</b>
246	Hupara Land Care3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<b>19.38</b>
<b>Western</b>																				
16	Katui	47.6	39.4	20.4	28.2	17.5	16.1	14.4	-	14.9	13.9	-	4	-	0	-	0.25	-	-	<b>0.00</b>
17	Trounson North	8.5	17.3	12.5	19	16	14.3	16.1	-	15.25	19.9	22.2	15.4	-	13.75	22.33	5.75	15.13	12	<b>10.00</b>
33	Trounson South	-	-	-	-	-	-	12.25	-	23.75	19.1	-	-	8.2	8.9	-	11.13	12.33	10	<b>6.00</b>
18	Cathedral	2.3	3.8	5.1	5.5	5.1	1.8	2.75	5.9	5.25	4.9	4	4.6	4.4	3	1.63	2.75	4.13	2.63	<b>4.38</b>
19	Waipoua L/Out	30.9	24.4	30.8	27.7	21.4	21.8	14.6	8.4	16.9	22.75	23	-7.9	11.8	6	6	9.25	15.63	8.88	<b>10.00</b>
79	Toronui Track	-	-	-	-	-	-	-	-	1.75	2.4	-	-	-	-	-	-	-	-	-
96	Kawerau Rd Cr	-	-	-	-	-	-	-	-	3.4	2	0.3	0.4	1	-	-	-	-	-	-
179	Marlborough 13	-	-	-	-	-	-	-	-	-	-	-	-	-	6.5	-	-	-	-	-
20	Paerata	9.9	1.3	3.1	6.5	2.8	3.1	1.25	-	0	-	-	-	0.9	1.1	1.63	0.25	0.38	1.13	<b>0.25</b>
31	Te Matua Ngahere	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.25	4.13	-	-	-
13b	Site 13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.13	-	-	-	-
14b	Site 14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-
16b	Site 16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.38	2.13	1.5	1.38	<b>0.63</b>
18b	Site 18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-
28b	Site 28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.25	8.88	3.63	4.13	<b>5.13</b>
30b	Site 30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	0.88	-	-
31b	Site 31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-
32b	Site 32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.88	-	-	-	-
157	Opouteke CHH	-	-	-	-	-	-	-	-	-	-	-	6.6	6.1	2.8	11.25	-	-	-	-

Stn No.	Station name	1995 Mean	1996 Mean	1997 Mean	1998 Mean	1999 Mean	2000 Mean	2001 Mean	2002 Mean	2003 Mean	2004 Mean	2005 Mean	2006 Mean	2007 Mean	2008 Mean	2009 Mean	2010 Mean	2011 Mean	2012 Mean	2013 Mean
158	Pipiwai CHH	-	-	-	-	-	-	-	-	-	-	-	7.3	0.5	1.5	-	-	-	-	-
189	Alf's Cottage	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	-	-
190	River Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
244	Maunganui Bluff	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<b>0.00</b>
<b>Southern</b>																				
21	Glenbervie 7A	5	6.4	7.1	7.5	5	0.5	1	2.4	1	-	1.3	-	2.4	2.5	1.88	1.75	2.63	1.13	<b>4.25</b>
22	Glenbervie 9A	11.2	3.8	4.3	7.3	5.9	12.6	6.75	5.25	4.5	6.5	-	1.8	2.8	2.9	1.38	2.88	1.63	6.75	<b>6.88</b>
23	Marlow Road	22.4	13.9	14	17.8	19.8	21.3	22.9	-	19.8	17.6	12.1	10	13.3	11.1	10.25	7.25	13.13	15.38	<b>14.00</b>
24	Purua North	12.1	13	10.3	10.5	10.6	15	12.75	12.5	13.25	10.9	12.6	13.6	18.3	9.9	13.5	10	16.13	16	<b>17.63</b>
81	Purua South	-	-	-	-	-	-	-	-	14.75	15.9	14.4	14.1	14.6	10.5	12.5	11.13	17.5	10.75	<b>7.25</b>
25	Rarewarewa –early listen	-	-	-	8	10.4	4.6	7	6.5	4.6	5.9	5.6	4.8	6	-	-	-	-	-	-
25	Rarewarewa South	7.5	8	8.5	6.6	8.3	6.6	7	5.8	6.5	6.6	5.3	6.3	6.6	6.4	8.88	4	7.88	6.5	<b>4.63</b>
82	Rarewarewa North	-	-	-	-	-	-	-	-	9.75	6.6	4	8.5	7.9	10.4	11.38	11.38	11.88	12.13	<b>10.00</b>
139	Hodges Bush	-	-	-	-	-	-	-	-	-	-	9.8	13	16.1	17.75	15.5	16.63	9.5	13.75	<b>28.63</b>
145	Whangaruru	-	-	-	-	-	-	-	-	-	-	-	6	6	10.25	13.38	10.75	24.29	13.5	<b>9.38</b>
26	Mimiwhangata	11	5.6	3.5	3.6	0.3	9.4	19.1	20.3	13.8	20.25	14.3	21	19.5	12.9	11	8.38	-	11	<b>9.00</b>
167	Kaikanui Rd	-	-	-	-	-	-	-	-	-	-	-	-	8.5	11.6	15	8.38	7.25	3.75	<b>2.88</b>
27	Sandy Bay 1	3.6	3.4	2.8	8	6.1	3.3	3.5	-	3	-	2.5	-	-	6.75	-	5.25	-	4.17	<b>5.50</b>
194	Sandy Bay 2	-	-	-	-	-	-	-	-	-	-	-	4.5	-	-	3.83	3.5	2.5	4.5	-
195	Sandy Bay 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	4	<b>7.50</b>
34	Motatau 1	-	-	-	-	8.8	-	10	15	6.75	7.5	5.6	6.5	7.5	8.75	6	-	4.88	2.5	-
35	Motatau 2	-	-	-	-	-	-	-	2.7	-	-	1.5	3	2.5	-	-	-	4.25	-	<b>5.50</b>
36	Motatau 3	-	-	-	-	-	-	4.8	1.5	2.75	5.5	3.5	4.6	4	0.9	-	-	5.5	-	-
38	Motatau 5	-	-	-	-	-	-	1.5	1.25	0.9	1	-	-	-	-	-	-	-	-	-
68	Motatatu 9/ Marlow 1	-	-	-	-	-	-	-	11.7	11.75	17.6	13.5	10.5	9.3	2.9	7.13	3	9.75	9.88	<b>9.25</b>
129	Motatau 10/ Marlow 2	-	-	-	-	-	-	-	-	-	7.1	7.5	10.9	9	5.75	2.17	3.38	5	5.38	<b>7.75</b>
168	Worsp Rd	-	-	-	-	-	-	-	-	-	-	-	-	1.8	2.4	2	5.75	1.38	-	-
185	Whau Valley Dam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-
<b>Whangarei Heads</b>																				
39	Bream Hd 1	-	-	-	-	-	-	5	3.1	5.75	3.1	4.7	5.1	3.5	5	6	3	7.13	9.5	<b>9.63</b>

Stn No.	Station name	1995 Mean	1996 Mean	1997 Mean	1998 Mean	1999 Mean	2000 Mean	2001 Mean	2002 Mean	2003 Mean	2004 Mean	2005 Mean	2006 Mean	2007 Mean	2008 Mean	2009 Mean	2010 Mean	2011 Mean	2012 Mean	2013 Mean
40	Bream Hd 2	-	-	-	-	-	-	1.2	2	1.25	2.1	2.4	2	2.8	2	-	-	1.25	-	-
41	Bream Hd 3	-	-	-	-	-	-	-	-	-	-	1.5	2	1.3	1.6	-	-	-	8.38	<b>8.63</b>
42	Bream Hd 4	-	-	-	-	-	-	1.2	2	1.25	2.1	2.4	2	1.5	3.1	2	2	5.38	5.33	<b>7.63</b>
69	Bream Hd 6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.88	<b>6.75</b>
44	Taurikura 1	-	-	-	-	-	-	-	-	-	-	1.5	2	-	4.4	4.88	3.13	12.63	9.63	<b>10.75</b>
45	Taurikura 2	-	-	-	-	-	-	-	-	-	-	-	-	-	9	8.5	10.88	10.25	5.5	<b>10.38</b>
46	Taurikura 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	1.88	5.88	4.63	<b>4.00</b>
47	Manaia 1	-	-	-	-	-	-	3.5	2.5	4.25	4	3.3	3.9	2.1	5.1	3.88	3.25	10.25	2.88	<b>2.75</b>
48	Manaia 2	-	-	-	-	-	-	4	4.5	4.9	5.75	4	5.3	7.4	7.6	8.75	10.75	8.38	16.63	<b>13.25</b>
49	Manaia 3	-	-	-	-	-	-	3.25	3.9	2.9	-	2.1	3	-	4	3.13	3.5	6.25	3.13	<b>5.13</b>
71	Manaia 8	-	-	-	-	-	-	-	1.5	0.25	1	1.2	2	1.5	1.4	1.88	0.75	2.13	-	<b>4.63</b>
186	Manaia 9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.75	3.63	<b>6.88</b>
54	Kauri Mtn 1	-	-	-	-	-	-	4.5	1.5	-	3.1	7.4	1.3	-	1.4	3	2.13	2.5	3.63	<b>4.63</b>
72	Kauri Mtn 2	-	-	-	-	-	-	-	5.1	3.2	4.3	2.7	2.3	0.4	2.25	3.6	2.38	3.38	5.25	<b>5.00</b>
73	Kauri Mtn 3	-	-	-	-	-	-	-	2	1	1	1.3	2.5	-	5	3.38	1.13	6	3.25	<b>3.17</b>
74	Kauri Mtn 4	-	-	-	-	-	-	-	4.8	5.9	2.6	3	2.9	-	2	2	3.38	3.88	3.75	<b>3.25</b>
141	Kauri Mtn 5	-	-	-	-	-	-	-	-	-	-	2.3	1.9	1.25	2.5	3.13	3.25	4.75	4.13	<b>3.00</b>
127	The Nook 1	-	-	-	-	-	-	-	-	-	1.8	1.5	0.9	-	0.7	1.38	1.25	2.25	-	<b>0.88</b>
56	The Nook 2	-	-	-	-	-	-	6	2.1	3.25	3.8	4	5.3	-	5	4.5	7.75	9.25	8.38	<b>6.38</b>
128	The Nook 3	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	4.75	5	3.38	3.38	<b>4.63</b>
58	Nook Rd	-	-	-	-	-	-	-	-	-	-	-	-	-	3.75	-	3.67	4.63	1.5	-
187	McNamaras	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	14.13	<b>12.25</b>
<b>Tutukaka</b>																				
125	TLC 1	-	-	-	-	-	-	-	-	9.75	5.9	7.1	8.8	10.9	11.6	8.13	8.63	12.38	12	<b>12.14</b>
126	TLC 2	-	-	-	-	-	-	-	-	-	8.4	7.8	9.8	10.25	6.5	-	7.38	2.75	10	-
142	TLC 3	-	-	-	-	-	-	-	-	-	-	3	4.6	3.6	3	-	-	9.25	8.5	<b>7.13</b>
28	TLC 4	-	7.3	-	-	8	4.4	-	-	10.7	7.25	4.4	10	-	-	8.17	4.5	-	-	-
143	TLC 5	-	-	-	-	-	-	-	-	-	-	4.1	6	3.3	7.1	4	2.33	3.83	-	-
144	TLC 6	-	-	-	-	-	-	-	-	-	-	9.2	-	13	15.2	6.5	8.75	-	-	-
160	TLC 7	-	-	-	-	-	-	-	-	-	-	-	4.4	-	-	4.75	4.88	-	5.5	<b>2.13</b>







Stn. No.	Station name	Listener	1		2		3		4		Total	Mean
			1	2	1	2	1	2	1	2		
<b>Southern</b>												
139	Hodges	D. Kervell	42	17	33	21	30	43	24	19	229	28.63
81	Purua S	G. Brackenbury	1	8	9	14	11	6	5	4	58	7.25
25	Rarewarewa S	M. Valdes	6	5	7	4	5	0	9	1	37	4.63
82	Rarewarewa N	G. Pilon	3	12	18	5	13	12	13	4	80	10.00
35	Motatau 2	A. Taikato	5	6	-	-	-	-	-	-	11	5.50
129	Motatau 10	P. Macdonald	6	9	3	9	2	15	2	16	62	7.75
24	Purua N	P. Cornille	22	18	17	20	18	11	24	11	141	17.63
167	Kaikanui	P. Macdonald	3	5	1	1	1	2	3	7	23	2.88
23	Marlow Rd	G. Coulston	16	14	10	10	18	27	11	6	112	14.00
20	Paerata	G. Coulston	1	0	1	0	0	0	0	0	2	0.25
68	Motatau 9/Marlow 1	M. Ritchie	3	3	14	4	12	2	17	19	74	9.25
22	Glenbervie 9A	P. Graham	8	9	3	5	7	4	16	3	55	6.88
21	Glenbervie 7A	S. Wairau	2	3	2	6	5	4	7	5	34	4.25
26	Mimiwhangata	C. Moretti	10	8	12	2	10	17	0	13	72	9.00
145	Whangaruru	T. Grant	13	7	12	13	9	11	4	6	75	9.38
27	Sandy Bay	N. Pullman	4	9	5	3	6	10	1	6	44	5.50
195	Sandy Bay 3	N. Pullman	4	11	11	9	5	5	-	-	45	7.50
<b>Mahinepua</b>												
90	Site 0	M. F. Woodworth <i>et al.</i>	4	9	3	0	6	4	3	6	35	4.38
83	Site 1	M. A Schaab <i>et al.</i>	1	7	2	1	6	8	7	22	54	6.75
84	Site 2	C. Pusch/M. de Vries <i>et al.</i>	1	5	2	3	8	3	6	10	38	4.75
85	Site 3	P. Williams <i>et al.</i>	0	6	5	3	6	5	8	7	40	5.00
88	Site 4	A. Herbert <i>et al.</i>	4	8	9	5	2	7	10	12	57	7.13
99	Site 13	T. Kay/F. Craig/A. Luckman/S. Rose <i>et al.</i>	2	11	6	8	11	15	10	14	77	9.63
<b>Waimate North</b>												
191	Hupara LC 1	W. & S. Atkinson/S. Brown	18	20	14	15	11	4	16	23	121	15.13
245	Hupara LC 2	W. & S. Atkinson/S. Brown	22	22	17	23	17	24	24	18	167	20.88
246	Hupara LC 3	W. & S. Atkinson/S. Brown	24	20	13	23	15	15	29	16	155	19.38
113	W1	P. Saunders/L. Kerr	12	7	29	25	35	13	48	21	190	23.75

Stn. No.	Station name	Listener	1		2		3		4		Total	Mean
			1	2	1	2	1	2	1	2		
114	W2	L. Mountain/B. Wards	2	5	6	7	9	4	16	8	57	7.13
115	W3	K. Taylor	0	0	2	4	1	0	0	1	8	1.00
116	W4	D. Way	10	6	7	11	11	14	16	12	87	10.88
118	W6	D. Henderson/C. Matthews	6	8	7	6	6	11	7	9	60	7.50
120	W8	D. Way/K. Leung/L.Fletcher	6	10	10	15	8	8	7	9	73	9.13
121	W9	B. Brown	0	0	0	3	0	0	2	3	8	1.00
122	W10	D. Liebert	2	4	5	1	11	3	6	1	33	4.13
124	W12	J. Shaw/J. Todd/D. Way	4	5	3	1	7	2	15	4	41	5.13
<b>Whangarei Heads</b>												
39	Bream Head 1	W. & R. Newbold	11	9	7	7	9	15	10	9	77	9.63
41	Bream Head 3	A. Petel/G. Pike	9	10	10	5	4	6	15	10	69	8.63
42	Bream Head 4	M. & C. Pearson	9	14	10	5	9	4	7	3	61	7.63
69	Bream Head 6	C. Cook	6	5	11	3	15	0	9	5	54	6.75
54	Kauri Mt 1	J. Nairn	7	6	3	3	6	6	4	2	37	4.63
72	Kauri Mt 2	M. Barteldres	8	6	2	3	5	2	9	5	40	5.00
73	Kauri Mt 3	T. Bull	1	3	5	4	3	3	-	-	19	3.17
74	Kauri Mt 4	G. Faber	5	0	5	4	4	0	7	2	27	3.38
141	Kauri Mt 5	L. & R. Brown	4	5	3	2	4	2	2	2	24	3.00
47	Manaia 1	U. Schmid	7	0	6	0	3	0	3	3	22	2.75
48	Manaia 2	T. Hamilton	9	13	11	14	19	15	20	5	106	13.25
49	Manaia 3	P. Richards	5	4	2	11	6	5	5	3	41	5.13
71	Manaia 8	S. Adams	2	4	11	1	3	7	7	2	37	4.63
186	Manaia 9	J. Williams	6	7	8	7	11	6	7	3	55	6.88
55	Nook 1	W. Oxborrow	2	1	0	1	2	0	1	0	7	0.88
56	Nook 2	P. Coates <i>et al.</i>	4	8	6	4	15	3	7	4	51	6.38
57	Nook 3	L. Sutcliffe	7	3	6	4	4	2	7	4	37	4.63
44	Taurikura 1	C. Mitchell	12	13	7	4	9	12	20	9	86	10.75
45	Taurikura 2	G. Pike	8	17	11	10	5	8	8	16	83	10.38
46	Taurikura 3	K. Lange	4	4	3	6	4	0	7	4	32	4.00
187	Craig Rd	C. & J. McNamara	12	10	9	10	22	19	3	13	98	12.25
<b>Tutukaka</b>												
125	TLC 1	M. Camm	24	3	22	2	16	2	16	-	85	12.14

Stn. No.	Station name	Listener	1		2		3		4		Total	Mean
			1	2	1	2	1	2	1	2		
142	TLC 3	A. & J. Gilbert	11	7	6	5	3	5	8	12	57	7.13
160	TLC 7	N. Shayer	2	3	1	2	2	2	2	3	17	2.13
<b>Eastern</b>												
10	Marsden Cross	R. Booth/M. Douglass	26	22	53	27	39	18	28	29	242	30.25
14	Mt Bledisloe	S. M. McManus	7	14	16	10	4	9	16	10	86	10.75
11	Puketotara	A. Mentor/A. Kearney	5	4	8	6	9	17	12	17	78	9.75
13	Waitangi No. 12	A. M. McLeod/R. Booth	2	7	7	8	4	5	15	11	59	7.38
12	Rangitane	A. Walker	14	9	13	7	12	17	11	7	90	11.25
<b>Puketi Forest</b>												
102	Bramley's Ridge	A. Linton/A. Blackmore/I.D. Wilson	2	3	1	0	1	1	4	4	16	2.00
103	Pirau Ridge	B. Sutton/B. Boyd/L. M. Alston	3	0	2	4	1	1	0	0	11	1.38
104	Pond	I. D. Wilson/L. Alston/V. Miller	5	2	6	4	5	4	6	5	37	4.63
105	Pudding Bowl Hill	L. Riddell/I. Wilson	0	2	10	0	-	-	-	-	12	3.00
106	Takapau Track	P. Hodgson	0	0	2	4	1	3	0	1	11	1.38
107	Takapau/Pirau Rd Jn	L. M. Alston/B. Sutton/J. Mortensen/I. D. Wilson	0	0	1	1	0	1	4	2	9	1.13
108	Totara Ridge	I. Wilson/A. Blackmore/N. & D. Tuson/C. Miller	10	11	4	1	3	2	7	9	47	5.88
109	Waihoanga Gorge	C. & R. Robinson	3	7	1	5	0	4	8	6	34	4.25
110	Waihoanga Gorge 2	G. Adams	5	5	7	1	-	-	-	-	18	4.50
111	Walnut	A. Blackmore/G. Salt/I. D. Wilson	6	4	5	7	5	5	3	3	38	4.75
112	Stoat line 9 – Puketi	B. B. Boyd/D. O'Halloran <i>et al.</i>	1	5	0	3	1	5	13	1	29	3.63
188	Puketi Nature Trail	L. & P. Sutton <i>et al.</i>	1	1	8	5	4	4	1	2	26	3.25
<b>Northern</b>												
7	Puketi	D. O'Halloran	8	7	6	10	5	4	7	3	50	6.25

Stn. No.	Station name	Listener	1		2		3		4		Total	Mean
			1	2	1	2	1	2	1	2		
8	Puketi SR	K. Aukett & S. Grimme/V. & C. Miller	17	14	16	6	8	10	5	2	78	9.75
2	Takahue	F. Schou	3	12	7	6	3	5	6	0	42	5.25
4	Gartons	G. Upton	0	0	1	0	0	1	0	0	2	0.25
5	Kaiaka	K. Khaine & T. Higginson	2	-	3	-	1	-	2	0	8	1.60
3	Lightning Hill	L. Baigent	12	7	16	13	8	15	16	21	108	13.50
<b>Russell</b>												
59	Opito	K. D. Russell	5	5	6	5	14	8	4	8	55	6.88
15	Tikitikiore	L. Gordon	18	11	16	14	14	15	11	17	116	14.50
170	Nikau Block	L. Gordon	18	21	30	15	23	14	28	17	166	20.75
171	Mace/Farmer	K. D. Russell	4	6	6	2	4	3	2	5	32	4.00
172	Pipiroa	M. Pasco	0	5	4	6	6	2	5	15	43	5.38
62	Uruti Road	L. Gordon	13	19	13	19	19	10	7	11	111	13.88
173	Shortlands	K. D. Russell	2	0	3	1	1	1	1	0	9	1.13
60	Te Maiki/Flagstaff (sundial)	H. Lindauer, D. McKenzie, N. Lehmann	6	1	2	6	3	2	4	2	26	3.25
174	Johnsons	M. Frankum	5	13	13	5	6	24	11	4	81	10.13
177	Solomon's Gate	K. D. Russell, N. Lehmann	8	3	9	3	4	3	7	2	39	4.88
<b>Tawharanui</b>												
161	TWN 1 Marine triangle	Patte & Keri <i>et al.</i>	0	5	4	3	1	3	2	0	18	2.25
162	TWN 2 Trig triangle	Kaast/Wallen <i>et al.</i>	2	3	1	2	2	3	0	2	15	1.88
163	TWN 3 Top ecology track	J. & G. Barruel <i>et al.</i>	2	6	0	1	1	3	2	1	16	2.00
164	TWN 4 Possum gully	S. Richardson & M. Bleasdale <i>et al.</i>	0	2	3	3	1	1	1	0	11	1.38
165	TWN 5 Twin hills	R. Williams & S. Abraham <i>et. Al</i>	1	1	5	4	2	2	0	0	15	1.88
166	TWN 6 South coast water tank	Kerry & Enderby <i>et al.</i>	3	10	7	12	3	5	6	6	52	6.50