



Ark in the Park

Summary of North Island Robin

Breeding Season Data and Sightings 2010 – 2011

Compiled by Paul Carter (March 2011)



Photo by Grant Capill

Thanks:

Many people participated in the collection of data for the 2010-2011 North Island Robin season, including Gerhard Wette, John Stewart, Heidrun Schinke, Grant Capill, Keryn M^cCraken, Mike Vaneveld, Yvonne Vaneveld, Laurence Bechet, Sheryl Tapp, Karen Colgan, Robert Wills, Hayden Reynolds, John Sumich, Sarah Johnson, Grant Charleston, Tahlia Tini, Helen Falla, Kathy Chandler, Eric Wilson and Andy Warneford. Special thanks to Gerhard Wette for all the hard work he has put into maintaining and updating the robin database. Mark Bellingham for the graphs and Maj De Poorter for the editing of this report.

Introduction to Ark in the Park

The *Ark in the Park* is an open sanctuary at the Cascade Kauri in the Waitakere Ranges Regional Park, close to Auckland City. The project started in January 2003 and the aim is to restore functioning native ecosystems through pest control and re-introduction of native animals and plants lost from the Waitakere Ranges. This community based project is a partnership between Forest & Bird (Waitakere Branch) and the Auckland Council, made possible by the large Ark in the Park volunteer input.

The *Ark in the Park* area, as at March 2011, is 2000+ hectare, with an additional 600ha of pest control on neighbouring private properties (the Buffer Zone). Unlike many other “mainland island” projects, *Ark in the Park* does not have a predator proof fence – instead, ongoing pest control by our volunteers keeps predator numbers low enough to allow survival and breeding of re-introduced as well as original native birds and other biodiversity. Main predators targeted are ship rats (*Rattus rattus*) and other rodents, mustelids (stoat, ferret, and weasel), possums and feral cats.

The success of the project has lead to the Department of Conservation (DOC) to approve the re-introduction of Popokatea (Whitehead), Toutouwai (North Island Robin), Hihī (Stitch bird) and the North Island Kokako.

Background to North Island Robins in Ark in Park

Fifty-three robins were initially re-introduced into the park in April 2005, from Mokoia Island, near Rotorua. After a decline in robin numbers in 2008-09, which was thought to be in part caused by feral cats, a top-up translocation of 30 birds took place in June 2009 from Mangatutu (Waikato). This supplementary translocation was appropriate to establishing a self-sustaining population within a mainland setting. North Island Robins, although not a threatened species, have a contracting range within New Zealand. Our re-introduction will increase their survival prospect, as well as establishing them back into an area they previously roamed.

The Waitakere Ranges with its significant remnant kauri forest, vigorous regenerating mixed podocarp, and the many streams has proven a suitable release location for Toutouwai. The establishment of predator control within Ark in the Park and a possum control programme throughout the Waitakere Ranges, has allowed the restoration of this species, back into a portion of its former range. Management of feral cats was intensified during the 2009-10 season which appears to have benefited the populations further.

The robins dispersal has generated sightings from a wide area of the Waitakere Ranges, many outside Ark in the Park protection zone. The sightings have included both banded and unbanded birds being reported by the general public, Auckland Council staff and Ark in the Park volunteers. Some recent sightings have been close to Phia Road.

North Island Robin Breeding Season 2010 – 2011

- Highest number of breeding pairs (13 pairs) recorded in 2010/11.
- Record number of fledglings and nests also found in 2010/11.
- Since the introduction of the North Island Robin to the Ark in the Park in 2005/6, 133 fledglings have been recorded.
- The number of Fledglings banded this year has fallen again to only five. This has been due to a different attitude in banding. It was felt that banding them as chicks had a tendency to make them jump from the nest.
- Since the intensification of feral cat control in 2009/10 the ratio of fledglings per breeding pair has continued to increase.

The higher number of nests found is likely to be in part due to better communication and organisation of volunteers than previous years. The number of fledglings per nest would be influenced significantly by the increased effort that went into finding all nests of a pair. Hence, instead of calculating the number of fledglings per nest, we calculated the number of fledglings per pair for the different breeding seasons.

Table 1. Shows Robin Breeding Season Summary Data 2005-2011
(Full Report Appendix 1).

Table 1. Robin Breeding Season Summary Data 2005-2011

Breeding Season	No. Of breeding pairs	No. of nests found	No. of Fledglings	No. of banded Fledglings	Average No. fledglings/Breeding pair
2005-2006	5	11	24	14	4.8
2006-2007	6	13	25	17	4.2
2007-2008	8	15	24	11	3
2008-2009	5	10	13	12	2.6
2009-2010	9	14	18	8	2
2010-2011	13	21	29	5	2.2
Total			133		

North Island Robin Sightings 2010 – 2011 Season

- There are now more Ark in the Park birds being observed breeding than Mangatutu and Mokoia Island birds (See Table 4).
- Throughout the season a total of 43 individual were observed. Of the 43 birds observed, 25 birds were involved with breeding and there were 18 single birds, including 4 banded fledglings (See Table 2).
- Between June 2010 and March 2011 there were **580 sightings** of North Island Robins recorded by volunteers in the Ark in the Park area (See Table 2).
- Of the 18 single birds observed, 3 were Mangatutu birds and 15 Ark in the Park birds (See Table 3).
- Paired birds observed, involved 10 Mangatutu, 14 Ark in the Park and 1 Mokoia island bird (See Table 2 & 4).
- The season has recorded 29 Ark in the Park birds, 13 Mangatutu birds and 1 Mokoia Island bird which is now 5 years in age (See Table 3).
- The most commonly seen bird for 2010/11 was OG-RM, a female Ark in the Park bird breeding near Auckland City Walk/ AN17-18 (See Table 2).
- The **sex ratio** for the 43 birds sighted in 2010/11 was:
Male – 16
Female – 17
Unknown – 10
(See Table 2)
- The average age of the breeding birds is approximately 2.19 years. This is likely to be on the low side due the unknown age of the relocated birds i.e. Mangatutu (See Table 3).

For summary data see:

Table 2. Summary of Robin Sightings in Ark in the Park 2010-2011
(Full Report Appendix 1).

Table 3. Summary of Origin of Robins Seen in Ark in the Park 2010/11.

Table 2: Summary of Robin Sightings in Ark in the Park 2010-2011

Count	Band Combo	Sex	Total No. of sightings	Partner	Location	Number of times seen				First Seen	Last Seen
						June - Aug 10	Sept - Nov 10	Dec - Feb 11	Mar-May 11		
1	B-M	Male	18	Unbanded 7	TA 3/4	1	11	6	0	19/8/10	28/1/11
2	BM-BB		2	Fledgling	AN16, Hihi Feeder 4	0	0	2	0	11/1/11	12/1/11
3	BM-BG		2	Fledgling	Aviary:	0	0	2	0	11/1/11	12/1/11
4	BM-BR	Male	15	BM-BW	Cascade Track Bottom of Steps	2	11	2	0	22/8/10	27/12/10
5	BM-BW	Female	12	BM-BR	Cascade Track Bottom of Steps	2	9	1	0	22/8/10	30/1/11
6	BW-Y	Male	1	YG-OM	An1 /4-5	0	1	0	0	22/10/10	22/10/10
7	GB- OM	Female	42	GM-BO	AN17 ext.	2	22	18	0	19/6/10	12/2/11
8	GM- BO	Male	44	GB-OM	AN17 ext.	1	25	18	0	26/8/10	12/2/11
9	GM-BR	Male	1	Fledgling	AN19 ext	0	1	0	0	23/11/10	23/11/10
10	GM-BW	Female	2	-	AN16/Pukatea sign:	0	0	2	0	11/1/11	12/1/11
11	GM-BY		2	Fledgling	AN16, Hihi Feeder 4	0	0	2	0	11/1/11	12/1/11
12	GM-WR	Female	50	GM-WY	AN19 ext.	1	33	16	0	26/8/10	12/1/11
13	GM- WY	Male	46	GM-WR	AN19ext.	1	31	14	0	26/8/10	30/1/11
14	M-YY	Male	49	OG-RM	AN18 + Aviary	2	31	16	0	26/8/10	30/1/11
15	MB-Y	Female?	3	-	Stoat Trap 2	3	0	0	0	13/5/10	24/8/10
16	MB-YG	Female	18	MW-YW	R7/14-15	3	8	6	1	7/7/10	2/3/11
17	MB-YO	Female	9	MW-YO	Stoat Trap 4 Hihi	1	5	3	0	2/7/10	4/2/11

					Knoll						
18	MB-YY	Female	3	-	R14/10	0	3	0	0	2/10/10	10/10/10
19	MG-YG	Male	8	MW-YY	F8/2	2	6	0	0	20/8/10	30/1/11
20	MO-Y	Male	3	-	R13	0	2	1	0	2/10/10	12/1/11
21	MO- YB	Male	41	Unbanded 1	Hihi Feeder 4 /AN17	1	23	17	0	26/8/10	30/1/11
22	MW-Y	Male	9	WG-OM	AN1/4-5	0	9	0	0	18/9/10	28/11/10
23	MW-YB	Male	1	Unbanded 6	R14/7	0	0	1	0	21/1/11	21/1/11
24	MW-YO	Male	14	MB-YO	Stoat Trap 4 Hihi Knoll	2	8	4	0	2/7/10	4/2/11
25	MW-YW	Male	27	MB-YG WR-OM	R7/14-15	2	12	12	1	7/7/10	2/3/11
26	MW-YY	Female	18	MG-YG	F8/2	2	8	8	0	20/8/10	30/1/11
27	OG-RM	Female	55	M-YY	AN18 + Aviary	2	35	18	0	26/8/10	30/1/11
28	OR-GM	Female	2	-	Stoat Trap 4 Hihi Knoll	0	2	0	0	1/11/10	1/11/10
29	Unbanded 1	Female	35	MO-YB	Hihi Feeder 4 /AN17	1	21	13	0	29/8/10	10/1/11
30	Unbanded 4	?	1	-	IW5/4	0	0	1	0	2/1/11	2/1/11
31	Unbanded 5		1	-	Aviary	0	0	1	0	12/1/11	12/1/11
32	Unbanded 6	?	4	MW-YB	R13-14/7	1	0	3	0	27/8/10	17/2/11
33	Unbanded 7	Female	6	B-M	TA 3/4	0	4	2	0	19/9/10	3/1/11
34	Unbanded 8	Male	1	-	F8/2	0	0	1	0	8/1/11	8/1/11
35	Unbanded 9	?	1	-	AWN8/Access track	0	1	0	0	13/10/10	13/10/10

36	WG-OM	Female	6	MW-Y	AN1/4-5	0	5	1	0	6/9/10	3/12/10	
37	WR-OM	Female	19	MW-YW	R7/13	2	9	7	1	7/7/10	2/3/11	
38	WY-OM	Male?	1	-	ACW/T17	0	1	0	0	7/9/10	7/9/10	
39	YG-OM	Female	4	BW-Y	An1 /4-5	0	4	0	0	10/10/10	13/11/10	
40	?G-?M	Female	1	-	ACW/T17	0	1	0	0	7/9/10	7/9/10	
41	?	?	1	-	AWS8 (N)	0	0	1	0	2/1/11	2/1/11	
42	?	?	1	-	AWN5	0	0	1	0	2/1/11	2/1/11	
43	?	?	1	-	CG block	0	0	1	0	2/1/11	2/1/11	
Total			580				34	342	201	3		

Table 3. Origin of Robins Seen in Ark in the Park 2010/11

Origin of Robins	Number of birds seen in 2010-2011	Age (years)
2005 release (Mokoia)	1	5
Born in 2005/2006	0	
Born in 2006/2007	2	4
Born in 2007/2008	1	3
Born in 2008/2009	4	2
2009 release (Mangatutu)	13 (out of 30 released)	2
Born in 2009/2010	5	1
Born in 2010/2011	29	0
Uncertain origin e.g. unbanded, banded as adults etc.	12	?
Total	67	Average Age = 2*

*The average age does not include the 2010/11 births or the uncertain origins. The figure is expected to be on the low side as we do not know how old some of the Mangatutu birds were on release.

Specific Targeting and Control of Feral Cats

Increased feral cat control was put in place just before the 2009-2010 season after noticing a step reduction in robin numbers and fledglings. Since the specific targeting of feral cats, the robin adult numbers have increased and the number of fledglings per pair has again started to increase. This year the ratio of fledglings per pair has increased from 2.0 to 2.2. (See Fig.1 and Fig.2.)

Fig 1 and Fig.2. The effect of feral cat control on breeding pairs and fledglings.

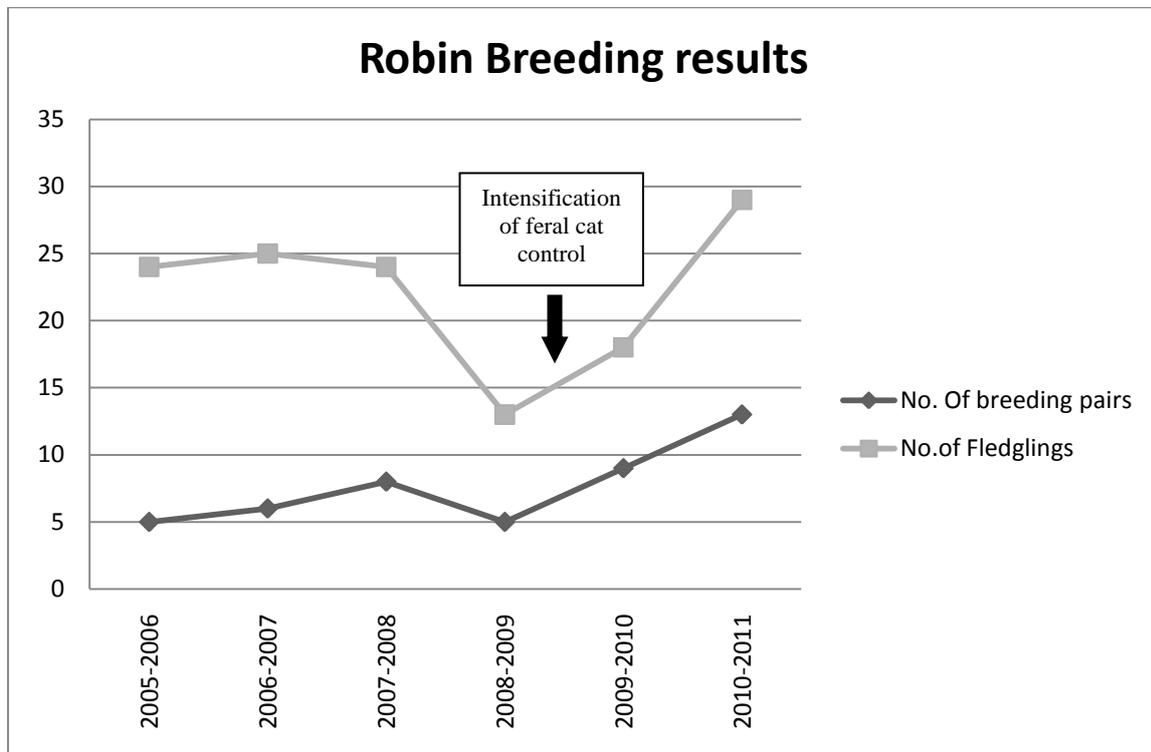


Fig. 1

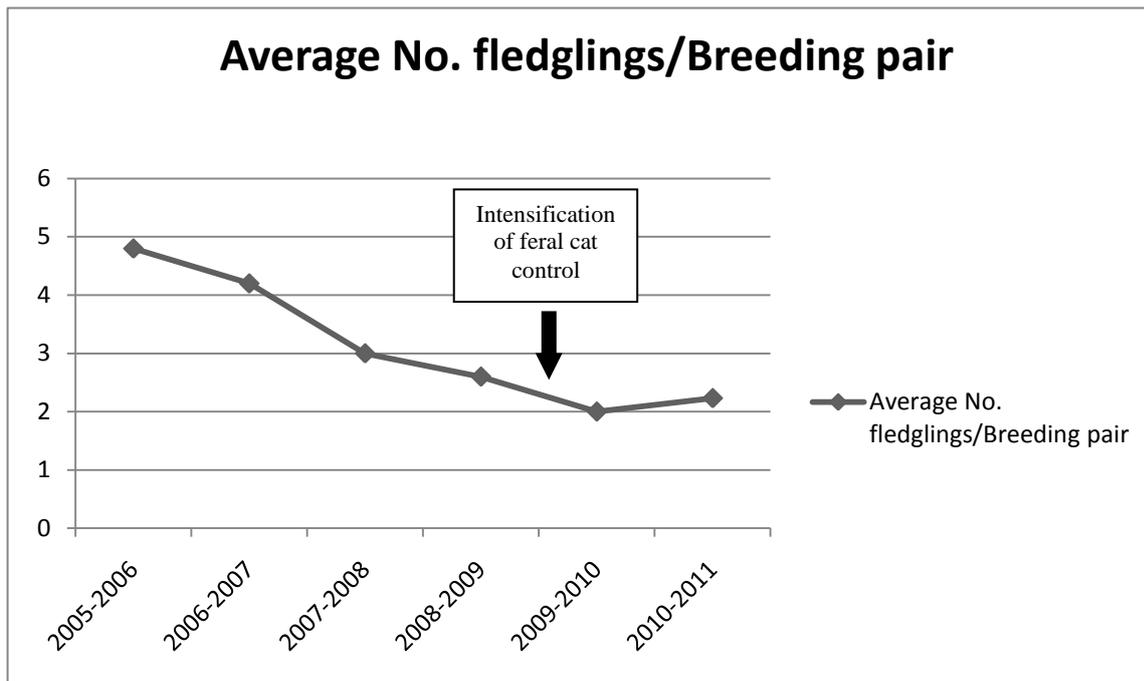


Fig. 2

Update on Mangatutu Birds Released in June 2009

Between June 2010 – March 2011, **13 individual Mangatutu birds** were observed in the Ark in the Park area. A total of **158 sightings** of Mangatutu birds were recorded during this period. That represented 27% of all sightings for the year compared to 44% last year. (That shows an increase of 17% Ark in the Park birds now being sighted)

The **sex ratio** for the Mangatutu birds observed during the 2010/2011 breeding season were: Males – 7; Females – 4; Unknown – 2

This is based on observed birds breeding and from data collected when they were caught and banded, which suggests sex according to tarsus measurements. The latter must be treated with some caution as it was found that some birds had been identified incorrectly from this data.

At least 3 Mangatutu-Mangatutu pairings remain amongst the birds released in June 2009:

MB-YG/ MW-YW
 MB-YO/ MW-YO
 MG-YG/ MW-YY

Five Mangatutu birds have paired up with Ark in the Park birds and bred successfully:

M-YY (Mangatutu) – OG-RM
 MO-YB (Mangatutu) – Unbanded 1
 MW-YB (Mangatutu) – Unbanded 6
 MW-YW (Mangatutu) – WR-OM
 MW-YY (Mangatutu) – MG-YG

From the 13 Mangatutu birds observed this year 10 were involved with breeding, with only 3 singles. MB-Y and MO-Y have never been recorded with a partner since their relocation to Ark in the Park.

The Mangatutu birds have mainly remained within the same areas that they have been observed to be in past years.

See table 4. Robin Pairings 2006-2011.

Table 4. Robin Pairings 2006-2011

2010/11		2009/10	2008/09	2007/08	2006/07	Total	Pairs/years	Approximate Age	Origin
Robin	Partner	Partner	Partner	Partner	Partner	No. partners			
B-M	Unbanded 7 (BW-RM not seen)	BW-RM	BW-OM BW-RM	BW-RM	BW-RM	3	4/5, 1/5, 1/5	5	Mokoia Island
BM-BW	BM-WR*	* Banded as Adults 2010/11				1	1/1	1	Ark in the Park
BM-WR	BM-BW*	* Banded as Adults 2010/11				1	1/1	1	Ark in the Park
BW-Y	YG-OM					1	1/1	1	Ark in the Park
GB-OM	GM-BO (PP-RM not seen)	PP-RM	Born			2	1/3, '1/3	3	Ark in the Park
GM-BO	GB-OM	Born				1	1/2	2	Ark in the Park
GM-WR	GM-WY	Born				1	1/2	2	Ark in the Park
GM-WY	GM-WR	Born				1	1/2	2	Ark in the Park
M-YY	OG-RM	OG-RM				1	2/2	2	Mangatutu
MB-Y	None	None				0	0/2	2	Mangatutu
MB-YG	MW-YW	MW-YW				1	2/2	2	Mangatutu
MB-YO	MW-YO	MW-YO				1	2/2	2	Mangatutu
MB-YY	None	Unbanded				1	1/2	2	Mangatutu
MG-YG	MW-YY	None				1	1/2	2	Mangatutu
MO-Y	None	None				0	0/2	2	Mangatutu
MO-YB	Unbanded 1 (M-YM Not seen)	M-YM				2	1/2, 1/2	2	Mangatutu
MW-Y	WG-OM	WG-OM				1	2/2	2	Mangatutu
MW-YB	Unbanded 6	None				1	1/2, 0/2	2	Mangatutu

MW-YO	MB-YO	MB-YO				1	2/2	2	Mangatutu
MW-YW	MB-YG WR-OM*	MB-YG	* MW-YW courted both birds at the same time. Both producing Juveniles			2	2/2, 1/2	2	Mangatutu
MW-YY	MG-YG	None				1	1/2, 0/2	2	Mangatutu
OG-RM	M-YY (BY-OM Not seen)	M-YY	BY-OM	None	Born	2	2/5, 1/5, 0/5	4	Ark in the Park
WG-OM	MW-Y	Born				1	1/2	2	Ark in the Park
WR-OM	MW-YW (OM-RB Not seen)	OM-RB				2	1/2, 1/2	2	Ark in the Park
WY-OM	None	None	Born			0	0/3	3	Ark in the Park
YG-OM	BW-Y	Not Sighted	Born			1	1/3	3	Ark in the Park
Average						1.2	Average	2.19	

Interesting Stories

1. **The oldest male in the Ark, B-M, still holds onto his territory.**
2. **“Extra marital affairs” by male MW-YW.**

1. **The oldest male in the Ark, B-M, still holds onto his territory.**

Now at the ripe old age of five, B-M still continues to be regularly seen, and still maintains his territory around the TA bait line.

The sad news is that his partner of the past four seasons, BW-RM, has not been sighted this season and B-M has paired up with an unbanded Ark in the Park female. They managed to produce three fledglings this season.

2. **“Extra marital affairs” by male MW-YW.**

The male North Island Robin MW-YW, a relocated bird from Mangatutu in 2009, has for the last two seasons been breeding with MB-YG. She was also a relocated bird from Mangatutu in 2009.

However, this is where the story becomes interesting. Reports started showing that MW-YW was also having an affair with WR-OM, an Ark in the Park female born in the 2008/9 season. Both females were within close proximity of each other.

Both females created nests early on in the season but no fledglings were produced. The second attempt at making nests by the females was successful with both nests creating two fledglings each.

As far as we know this is the first time that a North Island Robin male has been recorded rearing fledglings from two different females at the same time.

Acknowledgement of support:

The *Ark in the Park* Restoration project is community volunteers based project - a partnership between Forest and Bird and the Auckland Council. Its sustainability relies on voluntary support.

In addition, the Auckland Council supports the Ark in the Park restoration project in many ways, including the provision of bait for the project's rat management, and support for the project manager. The Auckland Council also provides logistical support; technical advice and their rangers are a much appreciated source of on-the-ground support.

Significant funding for the project comes from major sponsors: ASB Community Trust and The Trusts Charitable Foundation (Inc). Funding has also come from the Birdlife International Community Fund, Auckland Zoo Conservation Fund, the Department of Conservation Biodiversity and Advice Fund, as well as the Guardian Trust, the Watson Trust and Zelda Roberts Charitable Trust.

Contact Details

Ark in the Park Project Manager: Dr Maj De Poorter

Forest & Bird, Auckland Office

Phone/Fax: 09 302 3902 Postal Address: PO Box 108055, Symonds Street, Auckland 1150

Email: M.dePoorter@forestandbird.org.nz

arkinthePark@forestandbird.org.nz

Website: <http://www.arkinthePark.org.nz/>

<http://www.forestandbird.org.nz/what-we-do/projects/ark-in-park>

References / Further information

Bellingham M., Jack S., Makan T., Sumich J. and de Poorter M. (2009). *Ark in the Park Restoration Plan 2009*; Published by the Royal Forest and Bird Protection Society, Auckland, 2009.57pp.

Dublon M., (2010). *Ark in the Park Summary of North Island Robin Breeding Season Data and Sightings 2009 – 2010*.

<http://www.arkinthePark.org.nz/aboutarkinthePark/progressandplans.html>

Appendix 1: Robin Sightings in Ark in the Park 2010-2011

Band Combo	Sex	No. of sightings	Origin	Age (Feb 11)	Location	Number of times seen				Offspring No. (Fledglings)
						June - Aug 10	Sept - Nov 10	Dec - Feb 11	Mar- May 11	
B-M	Male	18	Mokoia Island	5	19/8/10 TA/4: 6/9/10 TA4-5: 10/10/10 TA/Anderson's track + fledgling: 15/10/10 TA/Anderson's track: 17/10/10 TA/3: 22/10/10 TA/3 + fledgling: 29/10/10 TA3-5: 7/11/10 TA3/5 2nd nest: 8/11/10 TA4 Nest: 13/11/10 TA4 nest: 26/11/10 TA3 + Fledglings: 28/11/10 TB3 + 2 fledglings: 3/12/10 TA3 + fledglings: 20/12/10 TB3: 3/1/11 TA3: 11/1/11: TA3: 17/1/11 TA3: 28/1/11 Anderson Track northern exit fork:	1	11	6	0	
Unbanded 7	Female	6	Ark	Adult	19/9/10 TA/4: 7/11/10 TA 4 2nd nest site + chicks: 8/11/10 TA4 + chicks: 13/11/10 TA4 + chicks: 3/12/10 TA3: 3/1/11 TA3: 28/2/11 TA3:	0	4	2	0	

GB- OM	Female	42	Ark	2	<p>9/6/10 ACW T17: 26/8/10 ACW AN17 ext: 1/9/10 AN 17 ext: 8/9/10 NEST (E1735766 N5916356) AN17ext /B blue line: 14/9/10 Nest: 16/9/10 Nest: 19/9/10 On track AN17 ext: 21/9/10 AN17 ext: 24/9/10 Nest: 26/9/10 Nest: 3/10/10 Nest possible chicks: 4/10/10 Nest Chicks: 13/10/10 AN17 ext 2 fledglings: 15/10/10 ACW /T17: 20/10/10 AN 17/4 Fledglings: 24/10/10 AN17/B: 2/11/10 AN17 ext/B + ACW swing bridge T(?) 17: 10/11/10 AN17 between ext + AN16 ext NEST 2: 14/11/10 Nest: 20/11/10 AN17 ext nest: 23/11/10 AN17 ext Hihi nest 4 + 2 chicks: 25/11/10 ACW/Hihi knoll: 27/11/10 Nest: 25/11/10 Hihi knoll / ACW: 29/11/10 An 17 ext /Hihi nest 4 + Chick(s): 5/12/10 AN17 ext: 6/12/10 An17 ext /Hihi nest 4 + 3rd nest: 8/12/10 AN17 ext / Hihi nest 4 nest: 12/12/10</p>	2	22	18	0	4

		AN17 ext nest: 13/12/10 AN17 ext nest: 19/12/10 An17 ext nest: 21/12/10 AN17 ext nest: 23/12/10 AN17 ext/3 nest: 24/12/10 sighted?: 26/12/10 AN17 ext/3 nest: 29/12/10 AN17 ext/3 nest: 3/1/11 AN17 ext/3 nest + chicks: 5/1/11 AN 17 ext/3 nest + chicks:10/1/11 AN17 ext/3 nest + chicks: 12/1/11 An17ext/3 nest + chicks: 30/1/11 AN16 ext + Fledgling: 4/2/11 T17 + Fledgling: 12/2/11 ACW Kauri tree + fledgling:				
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GM- BO	Male	44	Ark	<p>26/8/10 ACW AN17 ext: 1/9/10 AN 17 ext: 8/9/10 NEST (E1735766 N5916356) AN17ext /B blue line: 14/9/10 Nest: 14/9/10 AN 17 ext: 16/8/10 Nest: 19/9/10 On track AN17ext: 21/9/10 AN 17 ext: 26/9/20 ACW / AN17 + nest: 27/9/10 Hihi nest 4: 3/10/10 Nest: 4/10/10 Nest Chicks: 5/10/10 AN17 ext: 13/10/10 AN17 ext 2 fledglinds: 15/10/10 ACW/T17: 19/10/10 ACW/T17: 24/10/10 AN17 ext: 2/11/10 Ca.40 before AN17 ext stream side Fledgling: 3/11/10 Balustrade AN17 Fledgling: 7/11/10 AN17 ext Fledglings: 9/11/10 AN17 ext Fledgling + T15: 10/11/10 AN17 ext Fledgling: 14/11/10 AN17 / AN18 + nest: 20/11/10 AN17 ext-AN16 ext: 23/11/10 AN17 ext Hihi nest 4 + 2chicks: 27/11/10 Nest: 29/11/10 An17 ext Hihi nest 4 + chick(s): 5/12/10 AN17 ext: 6/12/10</p>	1	25	18	0	
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GM-WR	Female	50	Ark	2	26/8/10 Upper ACW: 1/9/10 Upper ACW: 5/9/10 AN19ext: 8/9/10 Upper ACW: 13/9/10 Nest E1735658 N5916551: 14/9/10 Nest AN19 ext: 16/9/10 An19 ext nest: 19/9/10 AN19ext nest: 24/9/10 AN19ext nest: AN19ext nest: 3/10/10 AN19 ext nest + chicks: 4/10/10 AN19 ext nest + 2 chicks: 5/10/10 AN19ext nest + 2 Chicks: 12/10/10 AN19 ext nest + 2 chicks: 13/10/10 AN19 ext nest + 2 chicks: 16/10/10 An19ext + chicks: 19/10/10 An19 ext + Fledglings: 20/10/10 AN19 ext + fledglings: 24/10/10 AN19 ext: 31/10/10 Trigene Tank: 1/11/10 An19 ext: 2/11/10 An19ext + fledgling: 3/11/10 AN19ext + Fledgling: 7/11/10 AN19/5 + fledgling: 8/11/10 AN19 ext + 2 fledglings: 9/11/10 AN19 ext + fledgling: 10/11/10 AN19ext: 14/11/10 An19ext Nest 2: 16/11/10 An19ext nest:	1	33	16	0	4
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				20/11/10 An19 ext nest: 22/11/10 An19 ext nest: 23/11/10 An19 ext nest: 27/11/10 AN19 ext nest: 29/11/10 An19 ext Nest 2 failed: 30/11/10 An19 ext: 5/12/10 AN19S/1: 6/12/10 An19 ext: 8/12/10 An19 ext: 12/12/10 An19s/1: 13/12/10 An19 ext/1: 19/12/10 AN19s/1: 21/12/10 An19 ext/1: 23/12/10 AN19 est/1 + chicks: 24/12/10 AN19ext/1: 26/12/10 AN19ext/1 Nest + Chicks: 29/12/10 AN19ext/1 nest + chicks: 3/1/11 AN19 ext/1 + Chicks: 5/1/11 AN19 ext/1 nest + 2 chicks: 10/1/11 An19 ext/1 + Fledgling: AN19 ext/1 + fledgling: 23/1/11 AN19ext/1 + fledgling: 30/1/11 Old Kauri ACW + 1st fledgling: 12/2/11 ACW upper entrance:				
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GM- WY	Male	46	Ark	2	<p>26/8/10 Upper ACW right: 1/09/10 Upper ACW right: 5/9/10 AN 19 ext: 8/9/10 Upper ACW right: 13/9/10 Nest (E1735658 N5916551): 14/9/10 Nest: 16/9/10 AN 19 ext: 19/9/10 Nest: 24/9/10 Nest: 26/9/10 Nest: 27/9/10 AN 19 ext: 4/10/10 Nest 2 chicks: 5/10/10 Nest: 13/10/10 Nest: 19/10/10 AN19 ext Fledgling: 20/10/10 AN19 ext Fledgling: 24/10/10 AN19 ext Fledgling: 31/10/10 Gully to right of trigene tank Fledglings: 1/11/10 AN19 ext Fledgling: 2/11/10 AN19 ext 2 fledglings: 3/11/10 AN19 ext 2 fledglings: 7/11/10 AN19/5 2 fledglings: 8/11/10 AN19 ext 2 fledglings: AN19 ext 2 fledglings: 10/11/10 AN19 ext 2 fledglings: 16/11/10 AN19 ext 2 fledglings 1 male 1 female: 20/11/10 above nest: 22/11/10: AN19 ext + male fledgling: 23/11/10 AN19 ext +</p>	1	31	14	0
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M-YY	Male	49	Mangatutu	2+	26/8/10 AN 18 + Aviary: 28/8/10 Near Aviary: 5/9/10 AN 18: 8/9/10 Near Aviary: 10/9/10 AN17/1: 19/9/10 Near Aviary: 20/9/10 Near Aviary: 21/9/10 AN 18: 24/9/10 AN 18/1: 26/9/10 ACW AN18 + Aviary: 27/9/10 ACW AN 18 + AN19 ext: 3/10/10 Aviary + ACW AN18 + ACW entrance by Kauri: 4/10/10 Nest fed OG-RM: 5/10/10 AN18: 12/10/10 Near Aviary: 13/10/10 Nest: 20/10/10 Nest Chicks: 24/10/10 Nest: 31/10/10 Nest Chicks + AN18 Golf Course side: 1/11/10 Nest Chicks: 2/11/10 Nest Chicks: 3/11/10 Nest Chicks: 7/11/10 Aviary nest site + An 17/5: 8/11/10 AN18 ext: 9/11/10 AN18 ext Fledgling: 10/11/10 AN18 ext: 14/11/10 AN18/1 ext: 16/11/10 ACW Tui nest: 22/11/10 ACW Tui nest: 23/11/10 AB18: 27/11/10 AN18/1 nest: 29/11/10 AN18: 30/11/10 AN 18 +	2	31	16	0	4
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				<p>Fledgling: 5/12/10 AN18/1 nest + ACW/AN18: 6/12/10 AN18: 8/12/10 An18 Nest + chick(s): 12/12/10 AN18/1 nest + chicks: 13/12/10 An18/1 nest + chicks: 19/12/10 AN18/1 + chicks: 21/12/10 An18/1 + 3 chicks: 24/12/10 An18/1 + 3 fledglings: 26/12/10 AN18ext + fledgling: 29/12/10 AN18 ext + 1 fledgling: 3/1/11 AN18 + fledgling: 5/1/11 AN18 + fledgling: 10/1/11 AN18 + fledgling: 11/1/11 An18 + Fledgling: 12/1/11 AN18 + fledgling: 30/1/11 AN18:</p>				
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OG-RM	Female	55	Ark	4	<p>26/8/10 AN 18 + Aviary: 28/8/10 Near Aviary: 1/9/10 Near Aviary: 5/9/10 Near Aviary: 8/9/10 Near Aviary: 14/9/10 AN 18/1: 19/9/10 Near Aviary possible nest: 20/9/10 Near Aviary: 21/9/10 AN18: 24/9/10 AN 18/1: 26/9/10 Aviary: 27/9/10 Aviary: 28/9/10 Near Aviary: 3/10/10 Aviary: 4/10/10 NEST: 5/10/10 Nest: 12/10/10 Nest: 13/10/10 Nest: 16/10/10 Near Aviary: 19/10/10 Nest: 20/10/10 Nest Chicks: 24/10/10 Nest: 31/10/10 Nest Chicks + AN18/Golf Course side: 1/11/10 Nest Chicks: 2/11/10 Nest Chicks: 3/11/10 Nest Chicks: 8/11/10 Near Aviary: 9/11/10 AN18/1: 10/11/10 AN18/1: 14/11/10 AN18/1 ext: 16/11/10 AN18/1: 20/11/10 AN18/1 Nest: 22/11/10 AN18/1: 23/11/10 AN18: 27/11/10 AN18/1 nest: 29/11/10 AN18 nest: 30/11/10 AN 18 nest: 5/12/10 AN18/1</p>	2	35	18	0	
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				nest: 6/12/10 AN18 nest: 8/12/10 AN18 nest + chick(s): 12/12/10 AN18/1 nest + chicks: 13/12/10 AN18/1 nest + chicks: 19/12/10 an18/1 nest + chicks: 21/12/10 An18 nest + 3 Chicks: 23/12/10 AN18/1 Nest + 3 chicks: 24/12/10 AN18/1 + 3 Fledglings: 26/12/10 An18 + fledgling: 29/12/10 Aviary golf side + fledgling: 3/1/11 Aviary Golf course side + fledgling: 5/1/11 Aviary Golf course side + fledgling: 10/1/11 Aviary + fledgling: 11/1/11 AN18/2 + fledgling: 12/1/11 Aviary + 2 fledglings: 23/1/11 Aviary: 30/1/11 Aviary:						
MB-YO	Female	9	Mangatutu	2+	2/7/10 ACW/Stoat trap 2: 24/9/10 R1/Cascade track: 7/10/10 R1/cascade track: 30/9/10 R1 Cascade track: 17/11/10 Seat trap 4/ Hihi knoll: 25/11/10 Stoat trap 4 Hihi Knoll: 9/12/10 Stoat trap 4/Hihi Knoll: 20/1/11 Stoat trap 4/ Hihi Knoll + 3Nest: 4/2/11 Stoat trap 4/	1	5	3	0	2

MO- YB	Male	41	Mangatutu	2+	26/8/10 Hihi feeder 4: 1/9/10 Hihi Feeder 4: 5/9/10 Hihi feeder 4: 8/9/10 Hihi feeder 4: 19/9/10 Hihi feeder 4: 20/9/10 AN 16/1: 21/9/10 AN16/1: 26/9/10 F/H4 + Nest: 27/9/10 Nest: 5/10/10 Nest: 12/10/10 Hihi feeder 4: 13/10/10 AN17/4 Nest 2: 16/10/10 Nest: 19/10/10 Nest: 20/10/10 Nest: 24/10/10 Hihi feeder 4: 31/10/10 AN17/3-4: 3/11/10 Balustrade AN17 + 3 AN17/5: 7/11/10 Nest +old nest 17/4: 9/11/10: Nest: 10/11/10 AN18 ext: 20/11/10 AN17 ext nest Chicks + AN17ext - AN16 ext: 23/11/10 Nest AN17/5 + Chick(s): 27/11/10 Nest: 29/11/10 AN17/5 nest + chicks: 5/12/10 AN17/5 nest + chicks: 5/12/10 AN17 ext: 6/12/10 AN17/5 + fledgling: 8/12/10 An17/5 + 1st fledglings: 12/12/10 Feeder 4 + fledglings: 13/12/10 Feeder 4 + 1st fledgling: 19/12/10 Feeder 4 + Fledglings:	1	23	17	0	3
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				<p>21/12/10 Feeder 4 + fledgling: 23/12/10 AN16 + 2 fledglings: 24/12/10 Hihi Feeder 4 + 3 fledglings: 26/12/10 ACW/Hihi feeder 4 + 2 fledglings: 29/12/10 ACW after wood bridge + 2 fledglings: 3/1/11 Hihi feeder 4 + 2nd Fledgling: Hihi feeder 4 + 2 fledglings: 10/1/11 Hihi feeder 4 + fledgling: 11/1/11 AN16: 12/1/11 Hihi feeder 4: 30/1/11 AN16 ext nest + 2 Chicks: 12/2/11 ACW Hihi feeder 4/ AN16 + fledgling:</p>				
Unbanded 1	Female	35	Ark	<p>Adult</p> <p>29/8/10 Hihi Feeder 4: 20/9/10 NEST AN16/1: 24/9/10 Nest: 26/9/10 Nest: 27/9/10 Nest: 5/10/10 Nest: 12/10/10 Hihi feeder 4: 13/10/10 AN17 Nest 2: 16/10/10 Nest: 19/10/10 Nest: 20/10/10 Nest: 24/10/10 AN17/3: 31/10/10 AN17/4: 1/11/10 R7/13: 3/11/10 Nest 2 failed AN17/5 New Nest 3 : 7/11/10 Nest: 9/11/10 Nest: 14/11/10 Nest: 20/11/10 AN17/ 5-6 + nest chicks: 23/11/10 Nest AN17/5 +</p>	1	21	13	0

					chicks: 29/11/10 AN17/5 nest + chicks: AN17/5 nest + Chicks: 3/12/10 AN17/4 + Nest: 6/12/10 AN17/4: 8/12/10 AN17/4 + 2nd fledglings: 12/12/10 Feeder 4 + fledglings: 13/12/10 Feeder + 2nd fledgling: 19/12/10 Feeder 4 + 3? fledglings: 21/12/10 Feeder 4 + fledgling: 23/12/10 ACW/AN17ext / /ACW/AN16 ext + 3 fledglings: 24/12/10 ACW/ AN16 ext: 26/12/10 ACW/Hihi feeder 4 + fledgling: AN16 ext + fledgling: 3/1/11 AN16 ext: 5/1/11 AN16 ext/ sick Kauri: 10/1/11 AN16 ext/ sick Kauri:					
MW-YW	Male	27	Mangatutu	2+	7/7/10 R7/14: 20/8/10 R7/14: 15/9/10 R7/4: 24/9/10 R7/15-14: 8/10/10 R7/14: 29/9/10 R7/15: 10/10/10 R7/14: 24/10/10 + chicks: 26/10/10 R7/14nest + chicks: 29/10/10 R7/13: 1/11/10 R7/14 nest: 2/11/10 R7/14 + chicks: 16/11/10 R7/15 + chicks: 26/11/10	2	12	12	1	

					R7/14 nest: 8/12/10 R7/14: 11/12/10 R7/14: 12/12/10 R7/14: 21/12/10 R7/14 nest: 27/12/10 R7/14 + Fledglings: 2/1/11 R7/14 + fledglings: 9/1/11 R7/15 + fledgling: 30/1/11 R7/14- 15: 2/3/11 R7/15:					
					7/7/10 R7/14: 22/8/10 R7/16: 27/8/10 R7/16: 15/9/10 R7/4: 24/9/10 R7/14-15: 8/10/10 R7/14: 10/10/10 R7/14: 29/10/10 R7/ 14-15: 1/11/10 R7/14 nest: 2/11/10 R7/14 + chicks: 26/11/10 R7/14 nest: 8/12/10 R7/14: 11/12/10 R7/14: 12/12/10 R7/14: 21/12/10 R7/14 nest: 27/12/10 R7/14 + fledglings: 9/1/11 R7/15: 2/3/11 R7/15:					
MB-YG	Female	18	Mangatutu	2+		3	8	6	1	2
					7/7/10 R7/13: 20/8/10 R7/12-13: 24/9/10 R7/13 nest: 8/10/10 R7 nest: 10/10/10 R7 nest: 24/10/10 R7/13 + Chicks: 26/10/10 R7/13 + chicks: 29/10/10 R7/13 nest: 2/11/10 R7/13: 16/11/10 R7/13: 11/12/10 R7/13 nest + chicks: 12/12/10 R7/13 nest +					
WR- OM	Female	19	Ark	2		2	9	7	1	2

					chicks: 21/12/10 R7/13 + Fledglings: 27/12/10 R7/13: 2/1/11 R7/13 + 2 fledglings: 9/1/11 R7/13: 30/1/11 R7/13: 2/3/11 R7/13:					
MW-YY	Female	18	Mangatutu	2+	20/8/10 F8: 24/8/10 F7/F8: 15/9/10 F8: 24/9/10 F8/2: 30/9/10 F8/2: 7/10/10 F8/2: 8/10/10 F8/2: 10/10/10 F8/2 + chick: 24/10/10 R8/2: 26/10/10 F8/2 + Fledgling: 16/11/10 R8/2: 8/12/10 F8/2: 11/12/10 F8/2: 12/12/10 F8/3 + chicks: 21/12/10 F8/3 nest: 27/12/10 F8/2-3 + fledglings: 2/1/11 F8/3 + Chick: 8/1/11 F8/2: 30/1/11 F8/2:	2	8	8	0	
MG-YG	Male	8	Mangatutu	2+	20/8/10 F8: 22/8/10 F8/1-2: 15/9/10 F8: 24/9/10 F8/2: 30/9/10 F8/2: 7/10/10 F8/2: 8/10/10 F8/2: 10/10/10 F8/2 + chicks:	2	6	0	0	3
WG-OM	Female	6	Ark	2	6/9/10 AN1/3-4: 22/10/10 AN1/4-5: 29/10/10 AN1/4- 5: 7/11/10 AN1/4-5: 28/11/10 AN1/4: 3/12/10 AN1/4:	0	5	1	0	0

MW-Y	Male	9	Mangatutu	2+	18/9/10 AN1/4: 15/10/10 AN1/4-5: 10/10/10 AN1/4: 17/10/10 AN1/4-5: 29/10/10 AN1/4-5: 7/11/10 AN1/4-5: 13/11/10 AN1/4- 5: 26/11/10 AN1/4-5: 28/11/10 AN1/4:	0	9	0	0	
BM-BR	Male	15	Ark	Adult	22/8/10 Cascade track R1-2: 24/8/10 Cascade track 1st stream: 19/9/10 Cascade track bottom of steps: 24/9/10 Cascade track bottom of steps: 4/10/10 Cascade track Little Stream Crossing: 11/10/10 Cascade track bottom of steps: 14/10/10 Cascade track bottom of steps: 16/10/10 Cascade track bottom of steps: 19/10/10 Cascade Track bottom of steps: 20/10/10 Cascade track 1st stream crossing: 1/11/10 Cascade track bottom of steps: 2/11/10 Cascade track bottom of steps: 16/11/10 Cascade track bottom of steps + Chicks: 11/12/10 Cascade track bottom of steps: 27/12/10 Cascade track steps:	2	11	2	0	

					22/8/10 Cascade track little stream: 24/8/10 Cascade track 1st stream: 19/10/10 Cascade track bottom of steps: 25/10/10 Cascade track bottom of steps: 11/10/10 Cascade track bottom of steps: 14/10/10 Cascade track bottom of steps: 16/10/10 Cascade track bottom of steps: 19/10/10 Cascade Track bottom of steps: 2/11/10 Cascade track bottom of steps: 4/11/10 Cascade track bottom of steps: 30/1/11 Cascade track bottom of steps feeding chicks:					
BM-BW	Female	12	Ark	Adult		2	9	1	0	
BW-Y	Male	1	?	?	22/10/10 An1 /4-5:	0	1	0	0	
					10/10/10 AN1/4: 15/10/10 AN1/4-5: 17/10/10 AN1/4-5: 13/11/10 AN1/4-5:					
YG-OM	Female	4	Ark	4		0	4	0	0	
Unbanded 6	?	4	Ark	Adult	27/8/10 R13/14: 12/1/11 R13/7: 21/1/11 R14/7: 17/2/11 R14/6-7:	1	0	3	0	
MW-YB	Male	1	Mangatutu	2+	21/1/11 R14/7 + Fledgling:	0	0	1	0	1
GM-BY		2	Ark	Juv	11/1/11 AN16 (Banded):	0	0	2	0	

					12/1/11 Hihi feeder 4:					
BM-BB		2	Ark	Juv	11/1/11 AN16 (banded): 12/1/11 Hihi feeder 4:	0	0	2	0	
GM-BW	Female	2	Ark	Adult	11/1/11 AN16 banded: 12/1/11 AN16/Pukatea sign:	0	0	2	0	
BM-BG		2	Ark	Juv	11/1/11 Aviary(banded): 12/1/11 Aviary: 23/1/11 Aviary:	0	0	2	0	
GM-BR	Male	1	Ark	Juv	23/11/10 Banded: AN19 ext:	0	1	0	0	
Unbanded 5		1	Ark	Adult	12/1/11 Aviary fed by OG- RM (Fledgling?):	0	0	1	0	
Unbanded 4	?	1	Ark	Adult	2/1/11 IW5/4:	0	0	1	0	
OR-GM	Female	2		Adult	1/11/10 Hihi knoll stoat trap 4 + fledgling: 14/11/10 Aviary nest site:	0	2	0	0	1
MB-Y	Female?	3	Mangatutu	2+	13/5/10 Stoat trap 2: 2/7/10 Stoat trap 2: 24/8/10 R13/10:	3	0	0	0	
Unbanded 8	Male	1	Ark	Adult	8/1/11 F8/2:	0	0	1	0	
MB-YY	Female	3	Mangatutu	2+	2/10/10 R14/10: 3/10/10 W14/10: 10/10/10 R14/10:	0	3	0	0	
WB-YG	Female	1		Adult	24/10/10 R7/14 + Nest + Chicks:	0	1	0	0	0
MO-Y	Male	3	Mangatutu	2+	2/10/10 R13/20: 3/10/10 R13/20: 12/1/11 R13/13:	0	2	1	0	
Unbanded 10		1	Ark	Adult	4/2/11 Upper Kauri Track by fallen Kauri:	0	0	1	0	
Unbanded 11	?	1	Ark	Juv	10/2/11 G7 Fledgling:	0	0	1	0	1

Unbanded 12	?	1	Ark	Juv	10/2/11 G7 Fledgling:	0	0	1	0	1
OM-WY	Male?	1	Ark	3	7/9/10 ACW/T17:	0	1	0	0	
?G-?M	Female	1	?	?	7/9/10 ACW/T17:	0	1	0	0	
?	?	1	?	?	2/1/11 AWS8 (N):	0	0	1	0	
?	?	1	?	?	2/1/11 AWN5:	0	0	1	0	
?	?	1	?	?	2/1/11 CG block:	0	0	1	0	
Unbanded 9	?	1	Ark	Adult	13/10/10 AWN8 on Access track:	0	1	0	0	
GM-WB		2	Ark	Adult	23/1/11 AN16ext + Chicks: 30/1/11 AN16ext nest + 2 chicks:	0	0	2	0	1
Total		564				34	343	206	3	29