



# WAIRAKEI GOLF + SANCTUARY

## Annual Kiwi Report 2012



RUAPEHU AREA OFFICE, TONGARIRO / WHANGANUI /  
TARANAKI CONSERVANCY

Author: Renee Potae, Ranger - Biodiversity, Ruapehu Area



Department of Conservation  
*Te Papa Atawhai*

## SUMMARY

The 2011-2012 kiwi breeding season saw the first introduction of Western North Island Brown kiwi (*Apteryx mantelli*) chicks to Wairakei Golf + Sanctuary. Following the protocols of the Operation Nest Egg™ process, six kiwi chicks who originated from Rangataua forest, on the southern flanks of Mount Ruapehu, were released at Wairakei. They remained crèched there until they had reached a 'stoat safe weight' and so were considered suitable for release back into the wild. To date three of these kiwi have already been released into Waimarino Forest, west of Raetihi. Three kiwi remain within Wairakei Golf + Sanctuary and will be monitored regularly until they have gained enough weight to be released into the wild.



*Photo above: Rangers Renee Potae and Jerome Guillotel with kiwi chick, "Pubina"*

*Front cover photos: Clockwise from top left: Ian McNickle, Renee Potae, "Fern" (kiwi dog) Ranger Malcolm Swanney. Photo by: Project Tongariro. Peter Morton holding "Pubina". Renee Potae and Wairakei owner: Gary Lane. Kiwi footprints in a bunker. Photos by: Kim Turia*



Department of Conservation  
*Te Papa Atawhai*



**WAIRAKEI**

# 1. Introduction

Wairakei Golf + Sanctuary is a privately owned golf course and wildlife sanctuary situated 10km north of Taupō. A five kilometre "Xcluder" fence has been installed around the golf course and sanctuary perimeter and encompasses 180 hectares of land within the Wairakei Geothermal Park. The project is the brainchild of owner Gary Lane (Wairakei Golf + Sanctuary).

An extensive pest eradication program inside the enclosure was completed in July 2010 and the sanctuary officially opened in 2011. There have been several species of animal released into the sanctuary including 200 mixed colour pheasants. A small herd of fallow deer and a stag are being reared within a deer fenced area on site. Four deer have been released into the main golf course and sanctuary area (Wairakei Golf + Sanctuary).

Other initiatives include removal of blackberry and scrub from the course perimeter and the re-planting of around 25,000 native trees and shrubs and 5000 exotics (Wairakei Golf + Sanctuary).

During the 2011-2012 kiwi breeding season, six Western North Island Brown kiwi chicks were released into Wairakei Golf + Sanctuary.

The aim of the Department of Conservation (DOC) in managing the kiwi within the sanctuary is that this facility will be utilised as a crèche for Operation Nest Egg™ to support kiwi recovery projects aiming to conserve and increase wild populations of kiwi.

Ruapehu Area Kiwi Team staff are responsible for monitoring the kiwi at Wairakei and are assisted by DOC staff from Taupo and Ohakune and staff from Wairakei Golf + Sanctuary. Captive rearing of eggs and chicks is undertaken at Kiwi Encounter, Rainbow Springs at Rotorua.

The kiwi released at Wairakei this season originally came from Rangataua Forest on the southern flanks of Mount Ruapehu. With support from Ngāti Rangi, tangata whenua and kaitiaki for Rangataua, these kiwi were monitored closely at Wairakei, and three were then released into the wild at Waimarino Forest, west of Raetihi.

This is a result of discussions between DOC, Waimarino iwi groups and Ngāti Rangi iwi who support kiwi translocations to and from Rangataua and Waimarino Forests. It is intended this management method will ensure and support the long term management

of genetic diversity in the local populations of kiwi in the south Ruapehu area (Swanney 2011).

## 2. Methods

### 2.1 Egg lifts for Operation Nest Egg<sup>TM</sup> - Rangataua Forest

Four adult kiwi nests were monitored in Rangataua forest. At approximately 55 days, eggs were lifted and transported to Kiwi Encounter to be hatched in captivity. In two cases this season, very young chicks were found at the nest. They were also taken from the nest to be initially reared at Kiwi Encounter.

### 2.2 Chick Releases and Monitoring at Wairakei

The first two kiwi chicks, "Puhina" and "Funky" were radio-tagged and released into Wairakei Golf + Sanctuary on the 1<sup>st</sup> March 2012.

Chick weights were monitored closely to obtain a growth rate for the birds in the Sanctuary. For the first month, the chicks were captured weekly to check their health and obtain weights and bill measurements. The birds were then captured monthly in order to obtain measurements and to replace the transmitter strap. GPS co-ordinates were recorded each time the kiwi chicks were captured.

### 2.3 Capturing Techniques

In most cases, experienced DOC Kiwi Rangers employed proven techniques for capturing birds using protocols set out in the Kiwi Best Practice Manual (Robertson, Colbourne & McLennan, 2003). Wairakei staff were present to assist when possible. Ranger Malcolm Swanney and Kiwi dog "Fern" were a valuable tool in some of the more challenging situations.

#### 2.3a Catching kiwi in challenging Vegetation

In some cases, additional staff and equipment were required for catching due to the nature of the vegetation and terrain. Extensive tracts of weeds and blackberry have already been successfully removed from within the fenced area however this work is ongoing. Inevitably one or two pockets of large blackberry bushes were encountered.

The bushes encountered in these areas were interlaced with bracken fern and were one and a half to three metres in height. The dense, divaricating nature of the mass of bushes in these areas presented catching teams with significant challenges.

It was found that teams of four or more people as well as “Fern” the kiwi dog had the best rate of success for catching chicks in areas where blackberry bushes were present. However, this technique only proved successful when the kiwi was located in the smaller blackberry bushes interlaced with other types of vegetation. Capture was not successful when the bird was within the pockets of large dense blackberry bushes.



*Photo: Malcolm and Fern in blackberry bushes*

### 2.3b Golf course protocol

Wairakei Golf + Sanctuary allowed DOC staff to use golf carts for transport. In cases where kiwi were in close proximity to the tees, fairways and greens of the golf course, care was taken to ensure monitoring and catching teams would disrupt visitors playing golf as little as possible. Where appropriate, advice was sought from the course manager and this will be ongoing.

## 2.4 Stoat Incursion and Response

A stoat was sighted on 29<sup>th</sup> March by the Wairakei game keeper. The kiwi chicks were removed from the sanctuary and returned to Kiwi Encounter. Four additional kiwi originally from Rangataua were being reared at Kiwi Encounter at this time and also remained there as a precaution.

Wairakei Golf + Sanctuary staff responded by placing extra DOC 200 traps, Holden traps and tracking tunnels in a radius around the area where the stoat had been sighted. Additional traps were also placed in areas in where kiwi were known to reside (Lloyd, 2012).

A stoat was captured on the 5<sup>th</sup> April. The intensive trapping and tracking program was continued but no further evidence of the presence of predators within the sanctuary was found.

## 2.5 Post-Stoat incursion Releases and Monitoring at Wairakei

On the 4<sup>th</sup> May one of the kiwi, "Ebony", was radio-tagged and released at Wairakei. Live signals were obtained weekly.

On the 21<sup>st</sup> May, the remaining five kiwi were radio-tagged and released at Wairakei. This included the re-release of "Puhina" and "Funky", who had been removed from Wairakei after the stoat incursion.

On the 20<sup>th</sup> June 2012, four of the kiwi were caught and three of these were translocated to Waimarino Forest and released there without radio-transmitters.

The three kiwi still residing at Wairakei were then captured monthly to check weight and bill measurements as well as to replace the transmitter strap.

## 2.6 Releases to the wild population at Waimarino Forest

On the 20<sup>th</sup> June 2012 three kiwi, "Ebony", "Socks" and "Kruizinga" were caught at Wairakei and transported to Waimarino Forest, west of Raetihi. Waimarino Forest spans 13500ha and contains a commercial pine plantation and several thousand hectares of indigenous forest reserve. A significant population of North Island Brown kiwi exist within the forest, and O.N.E<sup>TM</sup> has been employed in an effort to ensure their long-term survival (Enviro Research Limited). This work has been undertaken by Whakamanu

Wildlife Trust in association with Enviro Research Ltd and landowners; Ngaporo Waimarino Trust, Pipiriki Incorporation, Atihau Whanganui Incorporation Waimarino Iwi groups. Forestry Company Ernslaw One Ltd. with its subsidiary Winstone Pulp International (WPI) has an interest in the exotic forestry at Waimarino.

### 3. Observations

#### 3.1 Chick Weights

During the stoat incursion event, all of the kiwi who were destined for Wairakei were kept at Kiwi Encounter. As a result, the weights for the chicks presented in Figure 1 below include those obtained at Kiwi Encounter before release at Wairakei and may not be a representation for growth rates of kiwi residing solely at Wairakei Golf + Sanctuary. (For more detailed observations see docdm1040631: "Wairakei Chick Weights 2012"). Kiwi were observed to lose a small amount of weight when they arrived at Wairakei, but steadily gained weight after approximately one month.

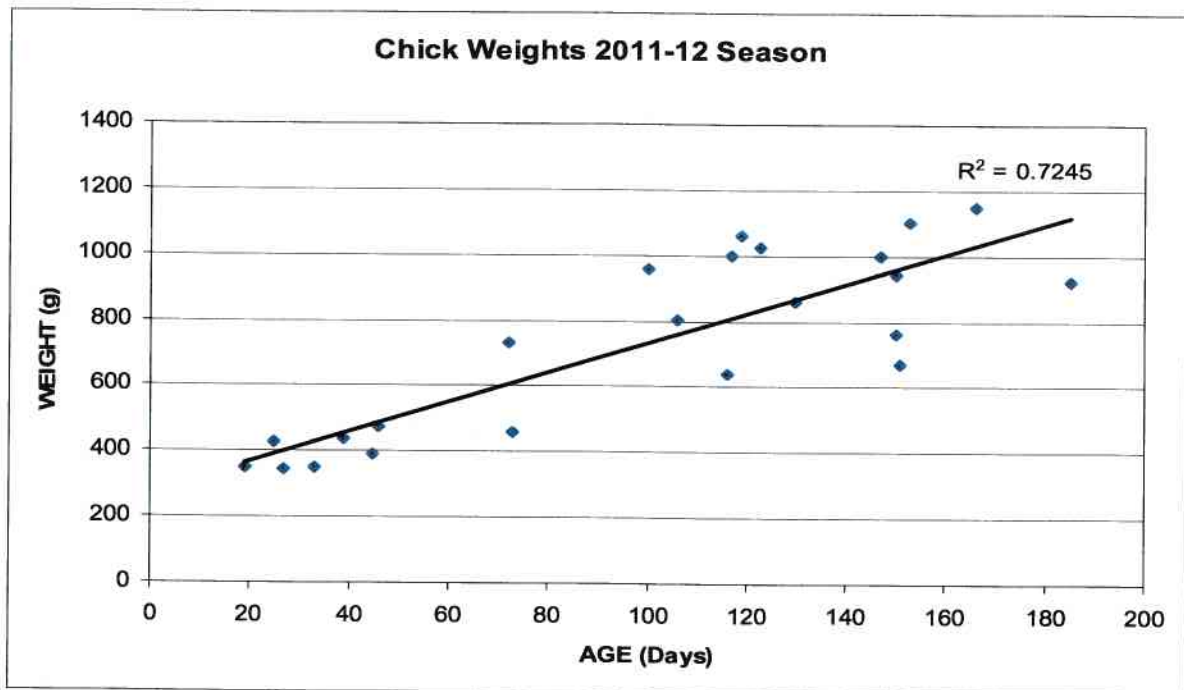


FIGURE 1: WAIRAKEI\* CHICK WEIGHTS FOR 2011-12 SEASON

*\*Includes release weights obtained at Kiwi Encounter*

### 3.2 Chick Dispersal

GPS co-ordinates were recorded when the kiwi chicks were captured. Locations were also obtained by triangulation of the radio-transmitter signals. This has provided some data for analysis of kiwi chick dispersal within the sanctuary. Table 1 shows the greatest distance travelled from the release sites, the age when this was observed, and the total amount of time spent in the sanctuary.

TABLE 1: GREATEST RECORDED DISTANCES FROM RELEASE SITES FOR EACH KIWI CHICK AT WAIRAKEI GOLF + SANCTUARY 2012

	Greatest recorded distance from Release site (m)	Age when greatest distance recorded (days)	Days at Wairakei when distance recorded	Total number of days at Wairakei
Funky	528	110	10 <sup>#</sup>	129*
Puhina	251	33	8	150*
Watea	193	116	44	102*
Kruizinga	301	153	30	30
Ebony	41	166	47	47
Socks	71	147	30	30

\*Chicks still at Wairakei. Total days given as at 31/08/2012

<sup>#</sup> 10 days after Funky's second release at Wairakei

In some cases kiwi were only present for one to two months. For these birds, the data set is very small. There does not appear to be any trends for the data obtained to date.

There were many interesting observations. "Puhina" moved 251 metres in her first week at age 33 days. "Funky" has moved the furthest around the golf course and has been observed to be in several different areas of forest within the sanctuary. These two birds have spent the longest time at Wairakei and were released there at the earliest age.

"Ebony" was recorded to have moved only 41 metres in her 47 days at Wairakei. "Ebony" was observed to be residing in a small area of pine forest between two fairways and was not observed to have moved from this area.

However, "Kruizinga" travelled 301 metres in only 30 days but was observed to have remained in the same area of pine forest where she was released.

Footprints were observed in the bunkers at the golf course, particularly on the 14<sup>th</sup> fairway beside one of the release sites.



## 4. Chick Outcomes

A total of six kiwi chicks were monitored at Wairakei Golf + Sanctuary. The first two chicks were released at Wairakei on the 1<sup>st</sup> of March 2012. Three were deemed healthy enough for release into the wild and were released at Waimarino Forest on the 20<sup>th</sup> June 2012. Three kiwi remain at Wairakei Golf + Sanctuary and continue to be monitored there.

## 5. Future Directions

The Wairakei Golf + Sanctuary will continue to be used as a crèche for kiwi for the 2012 - 2013 season. Kiwi chicks will be released into the sanctuary and monitored there until they reach safe weight for release into the wild.

### 5.1 Monitoring

The kiwi chicks will be captured monthly. Chick weights, bill measurements and locations will be recorded monthly.

### 5.2 Health Check Protocol for releases

The birds will be deemed to be at a safe weight for release when they weigh 1100g or more. Health checks will then be performed to ensure that the birds in good health before they enter a new environment. These will be undertaken two weeks before the proposed release date. If samples show high levels of the bacteria or parasites listed below, birds will remain at Wairakei until such time as they are deemed healthy to be released into the wild. Samples will be taken as follows:

- ◆ Cloacal swabs
- ◆ Faecal samples

These will be submitted to the Hamilton branch of New Zealand Veterinary Pathology Ltd. Samples will be tested for:

- ◆ Parasitology: FEC and Coccidia
- ◆ Microbiology: Salmonella, Campylobacter and Yersinia

### 5.3 Advocacy

There will be further opportunities to involve stakeholders and members of the community in the work being undertaken at Wairakei with kiwi. Together with the support of Wairakei Golf + Sanctuary and local DOC staff, the team will endeavour to include stakeholders, school groups and the community whenever appropriate. DOC staff are working with Wairakei staff in planning a Summer Programme event at the Sanctuary in the 2012 - 13 season.

The kiwi team will continue to write articles for the Wairakei Golf + Sanctuary Newsletter and will be open and willing to share our experiences at the golf course with any golf course members who are interested.

## 6. Acknowledgements

The Department of Conservation, Tongariro, Wanganui, Taranaki (T.W.T) Conservancy gratefully acknowledges Wairakei Golf + Sanctuary for the opportunity to utilise the facility as a kiwi crèche and for their contribution to the conservation and recovery of kiwi and other species.

The Department of Conservation, T.W.T Conservancy is grateful for the support and guidance of Ngati Tuwharetoa in the development and continuation of this project.

This work would not be possible without support and assistance of Ngati Rangi for the translocation of birds from Rangataua Forest to Kiwi Encounter and to Wairakei.

The iwi groups associated with Waimarino Forest, namely; Landowners: Ngaporo Waimarino Trust, Pīpiriki Incorporation, Atihau Whanganui Incorporation, Iwi: Uenuku, Tamahaki, Tamakana, Ngati Kurawhatia are gratefully acknowledged here for their support and assistance and for warmly welcoming the kiwi being released into the wild populations at Waimarino.

Kiwi Encounter, Rainbow Springs is recognised here for successful captive rearing of eggs and chicks for Operation Nest Egg™ since 1995, which now includes those destined for Wairakei.

Project Tongariro are acknowledged here for support and assistance with volunteer work and advocacy.

The Ruapehu Area Office would like to acknowledge Dave Lumley, Taupo-nui-a-Tia Area Manager for his support and guidance of the relationship with Wairakei Golf + Sanctuary. Staff from Taupo-nui-a-Tia assist us with our work and release days. Thank you to Kim Turia and to Ian McNickle.

Special thanks to Murray Cleaver, Taupo Field Centre Manager, and also Roy Baker for their assistance with monitoring the kiwi at Wairakei.

The Ruapehu Area Office kiwi team would like to acknowledge Nic Peet, Area Manager for Whanganui/Ruapehu, as well as Melanie Nelson and Anita Porima, Programme Managers for Iwi Relationships, for their guidance, assistance and advice.

Robert Hood, Programme Manager Biodiversity Assets, Ruapehu Area is gratefully acknowledged here for his support, encouragement and guidance.

The author of this report and would like to extend a heartfelt thank you to all of the members of the Ruapehu Area Kiwi team, namely; Jerome Guillotel, Nicole Dillon and Alison Beath. Without the support, assistance and combined experience of this team to draw from, the work at Wairakei would not be possible. I would like to include a special thank you to Malcolm Swanney and kiwi dog, "Fern", Dean Flavell and Kaitlin Morrison for always being keen to assist in challenging situations.

Kei a koutou ma, ko tenei te mihi nui ki a koutou ma, i roto i te Reo Rangatira. Ko te kupu nei he whakamihi ki te kaha o koutou ma ki te whakahaere i tenei mahi.  
Tena koutou katoa.



*Photo: Nigel Lloyd, Che Wilson, Peter Morton, Renee Potae, Karen Williams, Lu'ukai Nakanelua, Hannab Rainforth, Damian Coutts, Gary Lane. Photo by Kim Turia*

## 6. REFERENCES

Ecological Restoration - Enviro Research Limited (n.d) *Waimarino Forest Kiwi Restoration Project*. Retrieved August 2012 [www.enviroresearch.co.nz/s08-ecolrest.html](http://www.enviroresearch.co.nz/s08-ecolrest.html)

Lloyd, N. 2012. Wairakei Golf + Sanctuary - Stoat Incursion Report 29<sup>th</sup> March 2012.

McLennan, J. 2006. Western North Island brown kiwi (*Apteryx mantelli*): pathways to conservation and recovery. A technical report prepared for the Wanganui, Tongariro/Taupo and Waikato Conservancies of the Department of Conservation.

Robertson, H.A.; Colbourne, R.; McLennan, J. 2003. Kiwi Best Practice Manual.

Robertson, H. 2004. Research and monitoring plan for the kiwi sanctuaries. *Science for Conservation* 241. 24p.

Swanney, M. 2011. Karioi Rahui Annual Kiwi Report 2010-2011. *Genetic Diversity at KR*.

Wairakei Golf + Sanctuary. (n.d.) *Experience - Sanctuary*. Retrieved June 2012 [www.wairakeigolf.co.nz](http://www.wairakeigolf.co.nz)



Photo: Roy Baker (foreground), Jerome Guillotel and ReneePotae Retrieving "Pubina" from her burrow next to the 14<sup>th</sup> fairway.  
Photo by: Nigel Lloyd