

## RNRP great spotted kiwi acoustic monitoring

### Introduction

Past monitoring of great spotted kiwi (GSK) in the RNRP has focussed on monitoring individuals and breeding success via transmitters, however there is a need to monitor the trend of the population. From 2018 long-term population monitoring of the RNRP GSK population will be undertaken using acoustic recorders. This method has been selected rather than call counts due to the low call rate of GSK recorded in the RNRP in counts done in 2009 and 2011. In March 2018 acoustic monitoring was carried out for the first time in the RNRP, as a pilot for a long-term monitoring project.

### Methods

In March 2018 acoustic monitoring was carried out in the RNRP with the plan to repeat this annually. The method used was that outlined in best practise and advice received from the Kiwi Recovery Group (Robertson and Colbourne 2017).

Thirteen AR4 acoustic recorders were placed within and around the RNRP by DOC staff and Friends of Rotoiti (FOR) volunteers (Figure 1). Recorders were approximately 1.5km apart with recorder sites GPS marked, a yellow labelled triangle attached to the tree and two pieces of orange flagging attached to the branch where the recorder was hung to ensure recorders are placed in the exact same location each year. The monitoring period was selected as 15 nights in March over the new moon period. In March 2018 the new moon fell on the 18<sup>th</sup> and the monitoring period was set as the 10<sup>th</sup> of March to the 25<sup>th</sup> of March. The recorders were set to record for four hours a night from 2030 to 0030 on the low setting. For analysis the five nights with the highest disturbance were discarded to give ten monitoring nights. In 2018 the nights discarded were the 13, 15, 22, 23 and 24<sup>th</sup> of March. The analysis of the recordings was carried out by FOR volunteers using Audacity software.



Figure 1: Map showing locations of acoustic recorder sites for monitoring of the Rotoiti Nature Recovery Project great spotted kiwi population.

## Results

Two of the recorders did not function correctly (9 and 12). GSK were detected at five of eleven recorders however the call rate was low (Table 1). Males were detected at four recorders and females at three, with dueting only detected at one recorder. GSK were detected within the core area of the RNRP and up the Travers Valley but not on the northern end of the St Arnaud Range (Figure 2). Recorders 1 and 4 which were coincidentally in known GSK territories did not record any calls over the ten nights of monitoring.

Table 1: Kiwi call rates from acoustic monitoring in the Rotoiti Nature Recovery Project March 2018

Site	Number of Male Calls	Male Calls/Hour	Number of Female Calls	Female Calls/Hour	Total Calls/Hour	Number of Duets
KIWI01	0	0	0	0	0	0
KIWI02	5	0.125	9	0.225	0.35	4
KIWI03	2	0.05	0	0	0.05	0
KIWI04	0	0	0	0	0	0
KIWI05	0	0	0	0	0	0
KIWI06	2	0.05	1	0.025	0.075	0
KIWI07	1	0.025	0	0	0.025	0
KIWI08	0	0	3	0.075	0.075	0
KIWI09	NA	NA	NA	NA	NA	NA
KIWI10	0	0	0	0	0	0
KIWI11	0	0	0	0	0	0
KIWI12	NA	NA	NA	NA	NA	NA
KIWI13	0	0	0	0	0	0

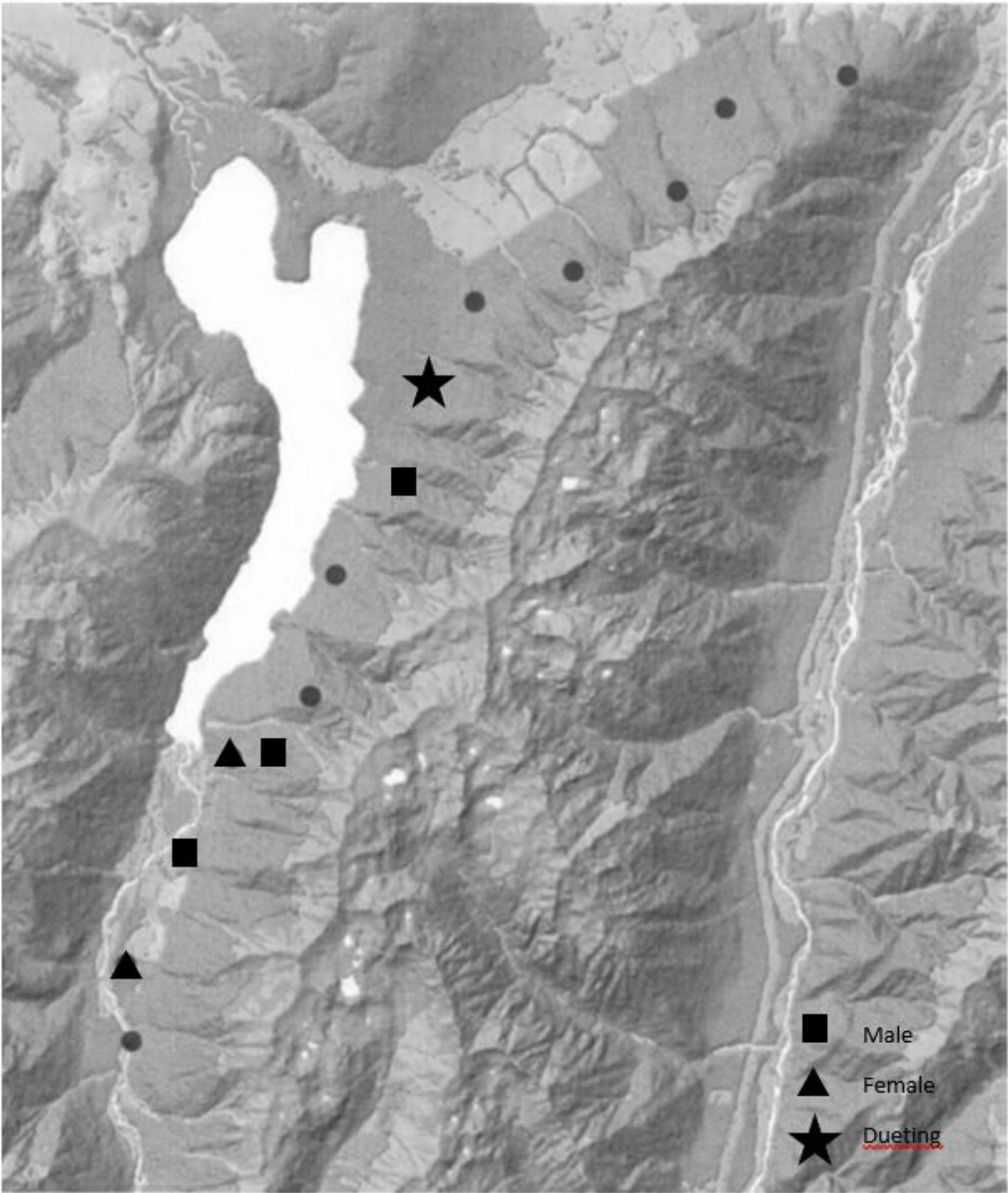


Figure 2: Locations of kiwi calls from acoustic recorders deployed in the Rotoiti Nature Recovery Project in March 2018.

Discussion

Although there were issues with two of the recorders and the required 15 recorders weren't put out, overall monitoring went well. A group of FOR volunteers are now experienced in analysing the recordings and completed this task very quickly. The acoustic monitoring

call rates in 2018 were low although several years of data will need to be collected before trends can be determined. This monitoring will be repeated in March 2019 with several of the recorders that had high background noise repositioned slightly to try and improve this and an additional two recorders deployed to take the total to 15.

### **References**

Robertson, H., and R. Colbourne. 2017. *Kiwi Best Practise Manual*. Wellington: Department of Conservation.

### **Acknowledgements**

Friends of Rotoiti volunteers Chris Richards, Wayne Sowman, Anne Melhuish, Julie and Tim Robilliard, Fran Andrews, Peter Hale, Grant Bolitho, Ross Beech, Pip and Kevin Berkett, George Dixon and Kevin Simpson. Water taxi operator Hamish Simpson who provided transport up the lake.