Te Ngahere
Native Forest Management

SH16 Causeway Pest Control Report

June - December 2014

Ecological Restoration and Consultancy

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Te Ngahere

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1 Introduction

The following report presents the results of the pest control programme that has been in progress from January 2014 along the SH16 Causeway from Traherne Island to the Whau River with a primary focus on the results from June to December 2014.

The programme is being run under the pest management plan prepared by Bioresearches Group Ltd. This plan targets rats, mice and mustelids (particularly stoats, *Mustela erminea*) in this area as these species are the greatest threats to coastal birds using habitats at the nearby Traherne and Pollen Islands. This plan remains effective until the end of the Causeway construction period.

2 Pest Control Summary, June – December 2014

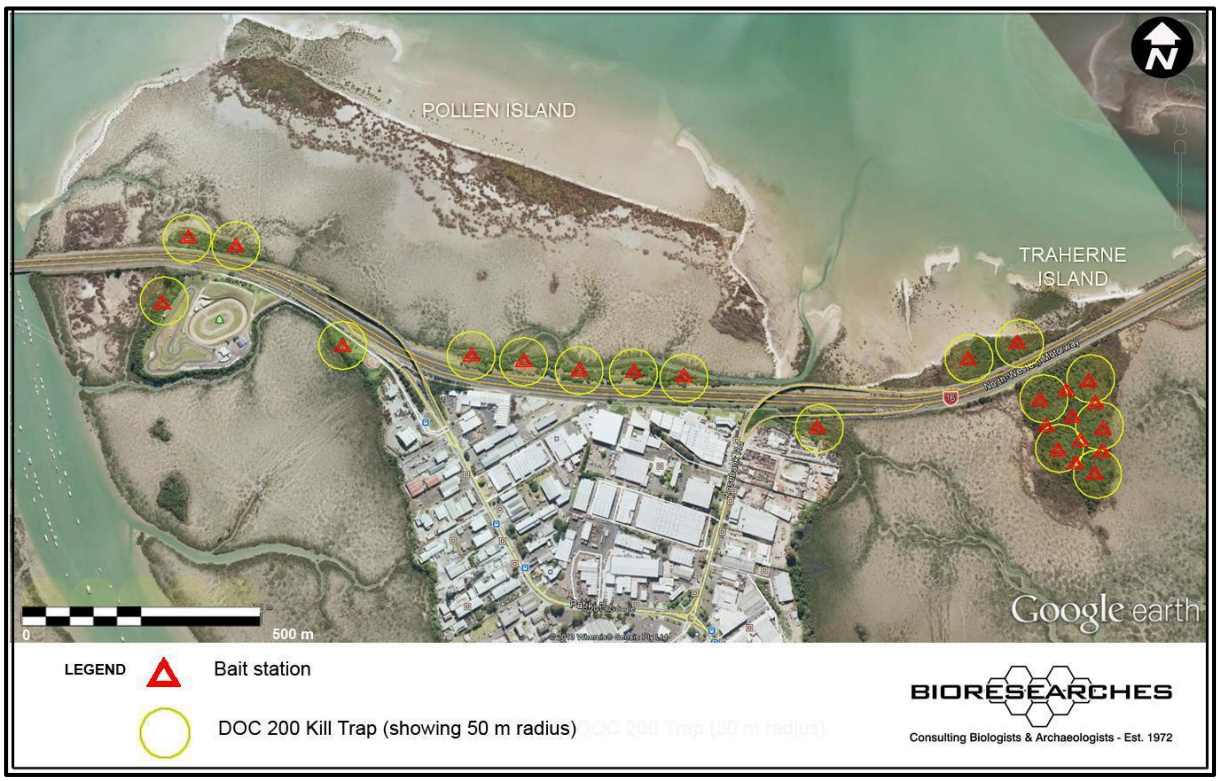

Figure 1: Suggested locations of bait stations and traps from Bioreseaches management plan

Figure 2: Actual placement of bait stations, traps and monitoring tunnels, December 2014. Bait stations/traps in red, monitoring tunnels in blue

Since the last six month report, the basic layout and methodology of the Causeway Pest Control project has remained consistent with the management plan prepared by Bioresearches Group Ltd. The current layout of the pest control network can be seen in Figure 2.

Monthly pest control visits were carried out from June 2014 to September 2014. From September to the present, checks have been carried out on a weekly basis and will continue until winter 2015.

The extra bait stations placed at the Gate C2 portacom due to rodent concerns from staff were removed in September due to extensive ground works and the removal of facilities in the area.

Another round of monitoring was carried out over October 21 & 22, 2014 using the same methodology as previous monitoring events.

Although extensive changes to work sites have taken place, especially at Gate C3, C5 & C6, pest control equipment is still able to be accessed and maintained, albeit at a slower rate.

Consistently high bait take was recorded at the stations at Gate C3 and the first three stations at Gate C4 during October and November. The Ditrac bait used (first generation anti-coagulant, active ingredient - diphacinone) was replaced with Final as advised by the management plan (second generation anti-coagulant, active ingredient - brodifacoum). This was carried out at the start of December and left over the Christmas / New Year holiday (December 19 – January 5) to ensure effective control over a longer period of time.

3 Results

3.1 Monitoring

Tracking card results from all three monitoring events to date (January, June and October, 2014) can be seen in Table 1 and Figure 3 below. The results from January are a baseline, carried out prior to pest control work commencing.

The tracking index for rats has increased slightly to 14% from June 2014 while the tracking index for mice remains at a consistently high value at 71%. No cards have yet been marked by stoats during tracking tunnel monitoring. The management plan stipulates that tracking index values over 20% should be considered high.

No evidence of cats or hedgehogs was identified on the tracking cards. Although not identified as target species for this project, they are known predators of native birds so have been included for reference.

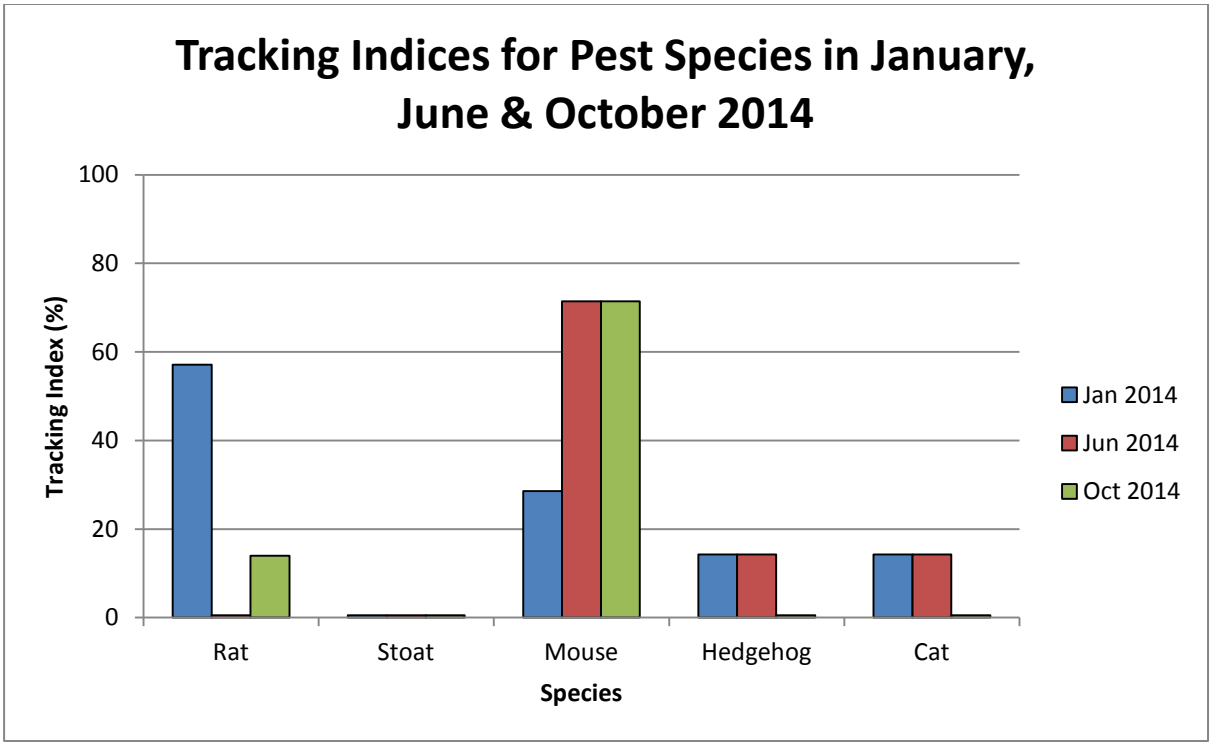

Figure 3: Chart showing tracking indices for pest species over three monitoring periods, January, June & October, 2014.

Table 1: Tracking tunnel monitoring results from January, June & October 2014

Species	# of Tracking Cards Marked (7 total)			Tracking Index		
	Jan	June	Oct	Jan	June	Oct
Rat	4	0	1	57%	0%	14%
Stoat	0	0	0	0%	0%	0%
Mouse	2	5	5	29%	71%	71%
Cat	1	1	0	14%	14%	0%
Hedgehog	1	1	0	14%	14%	0%

3.2 Trapping

The number of rats caught in each month (Figure 4) can be seen below. Rat catches have been maintained at four or less since April 2014. A single stoat was caught in October 2014.

Figure 5 and Figure 6 compare the kills per trap across all the traps over the two six month periods. Trap catch can be seen to have dropped at the majority of traps except for the one located at Gate C6 which remains at six.

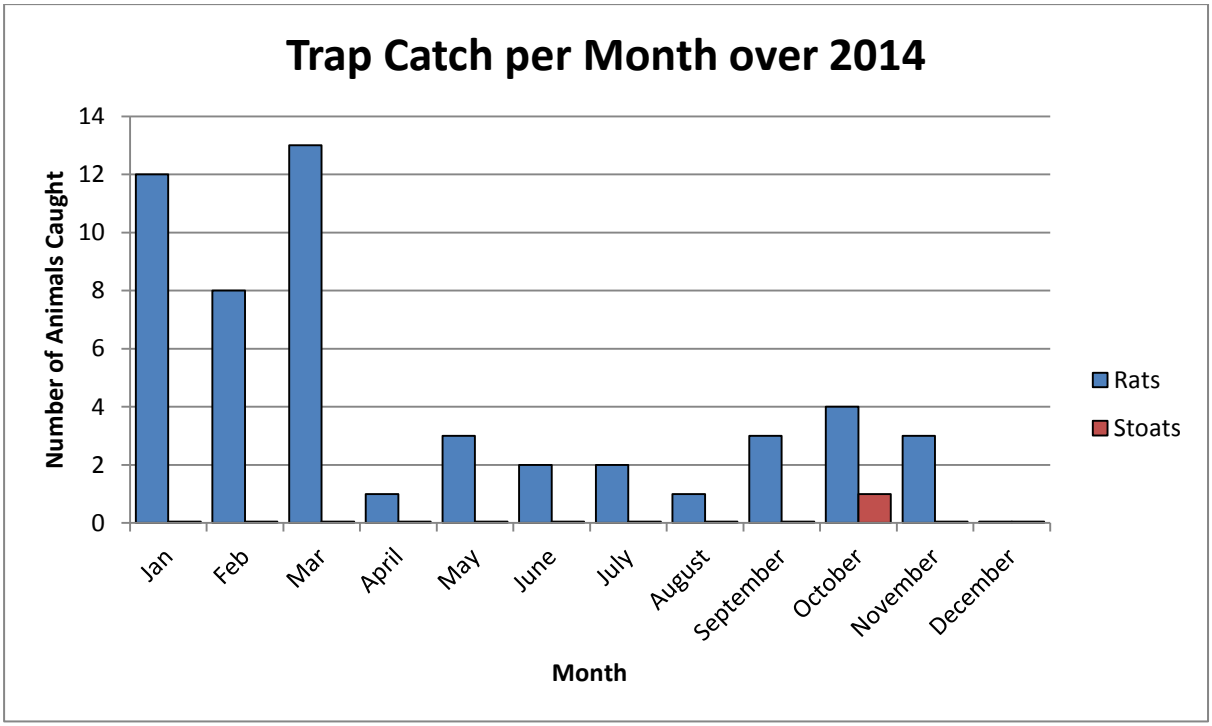

Figure 4: Chart showing number of rats caught per month from January to December 2014.

Figure 5: Map comparing kills per trap, January to June 2014

Figure 6: Map comparing kills per trap, June to December 2014

3.3 Bait Stations

The total amount of bait consumed each month can be seen in Figure 7 below. Bait take was maintained at a low rate from late autumn to the beginning of spring (April to September 2014). An increasing trend was observed from October to November. After the replacement of Ditrac with Final in the most active bait stations, a drop in bait take was immediately noticed.

Figure 8 and Figure 9 show where the most active bait stations were located over the two six month periods. These locations are fairly consistent, with the most active stations being located at Gate C3 and C4 each time.

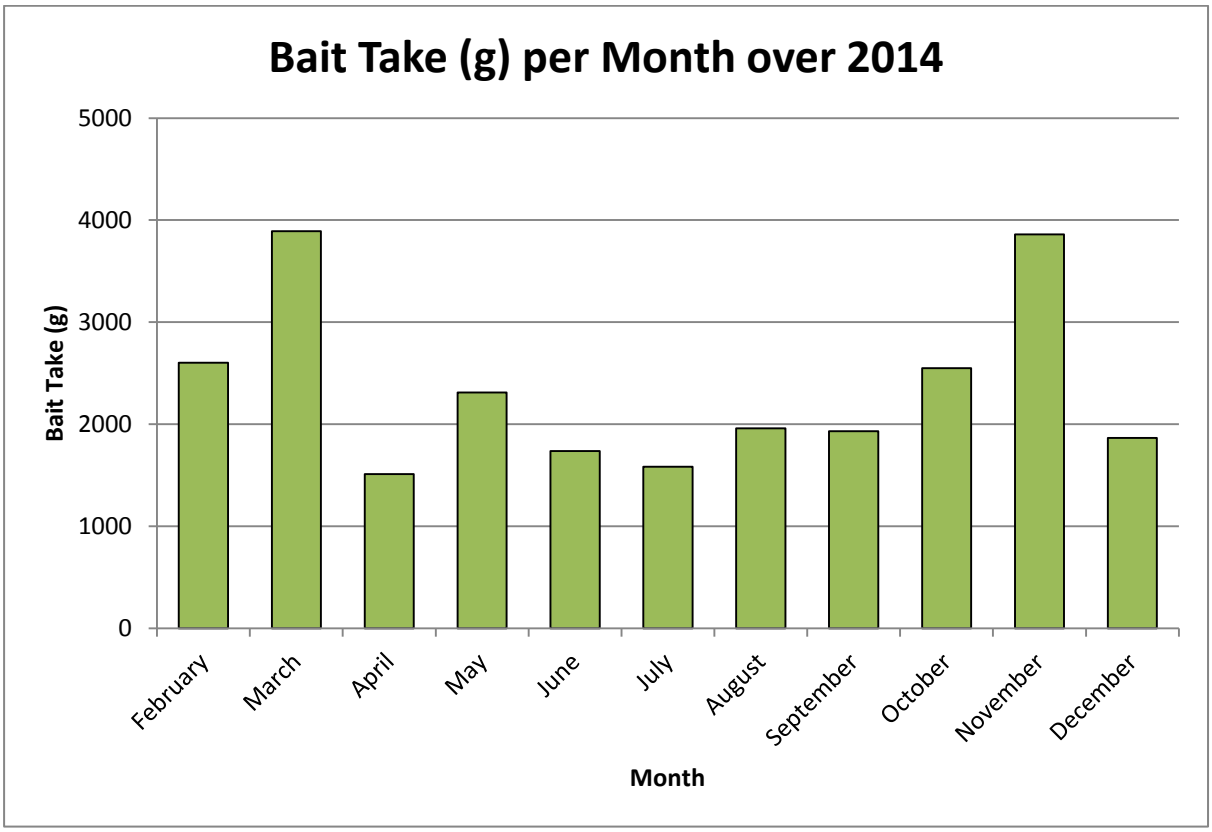

Figure 7: Chart showing bait take in grams per month from February to December 2014.

Figure 8: Map showing most active bait stations from highest bait take (Red) to lowest (Blue). January to June 2014

Figure 9: Map showing most active bait stations from highest bait take (Red) to lowest (Blue). June to December 2014

4 Discussion & Recommendations

Monitoring and trap catch results from June to December 2014 (Figure 3 & Figure 4) imply that the rat population is being maintained at a low density. Although an increase from a 0% tracking index for rats in June 2014 to 14% in October 2014 may seem like a significant increase, this only corresponds to one tracking card being marked by rats. The large increase in tracking index is due to the low sample size of seven tracking cards (Table 1). Regardless, the monitoring results collected in October 2014 still show a large decrease when compared with the baseline data for rat activity collected in January 2014 (Figure 3).

This card was located at Gate C6 on the southern side of the Causeway. Rat activity in this area is expected to be higher due to its proximity to the nearby waste management facility. No other rat activity was observed in tracking tunnels along the Causeway including those closer to high value ecological sites. This is supported by the individual catch rates for each DoC 200 trap (Figure 6). The trap located at Gate C6 has continued to result in a high number of kills. All other traps have resulted in a reduced or continued low catch rate.

The mouse population remains highly active with a tracking index of 71% (Table 1 & Figure 3). As mentioned previously, this is a common indicator of effective rat control. Although they are listed as a target species under the pest plan, mice are generally not as large of a threat to native wildlife.

Furthermore, rat catch and tracking tunnel activity has been maintained at a low level over September to November but bait take has increased over this same time period. This increase in consumed bait could therefore likely be the result of the active mouse population in the area. This is particularly evident when comparing the maps of bait take (Figure 8 & Figure 9) to the map showing individual trap catch (Figure 6). Although stations located at Gate C3 and C4 have continued to result in high bait consumption rates, trap catch in these same areas have dropped dramatically. This suggests that the bait being consumed is not being done so by rats.

In addition to the maintained low population of rats implied by these results, the catching of a stoat in October 2014 is encouraging as this is the period of time when nesting native birds are most vulnerable. A further two stoats were caught on Traherne Island on the southern side of the Causeway around the same time.

The appearance of multiple native bird nests at ground level have been sighted by Causeway Alliance and Te Ngahere staff, both along the Causeway and on Traherne Island itself. This is perhaps the most telling indicator of an effective pest control regime and suggests that the methods being used are effective in suppressing pest animal populations to ecologically functional levels.

5 References

Auckland Regional Council. (2009). Pest Animal Control: Result monitoring guidelines.

Bioresearches Group Ltd. (2013). Animal Pest Management Plan: Traherne to Whau River.