



WINDY HILL - ROSALIE BAY CATCHMENT TRUST

Windy Hill Sanctuary  
Goodnature A24 Trap Project



Report 5 – 8 March 2017

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## Background

The Goodnature A24 Trap project is a collaboration between the Great Barrier Local Board, Auckland Council, DOC, Goodnature Ltd, and the Windy Hill Sanctuary. Its purpose is to establish how effectively the non-toxic, self-setting, multi-kill Goodnature A24 trap is at reducing both ship rat and kiore densities within a pest managed Sanctuary on Great Barrier Island. This objective supports the local community aspirations to find ways to manage these pests with non-toxic methods.

Two hundred and ninety-three A24 Goodnature traps were established in the Big Windy Hill Pest Managed Area between February 22 and 24, 2016 by a team made up of personnel from Auckland Council, DOC, Goodnature, and the Windy Hill Sanctuary.

Traps were checked monthly for the first six months, and then every 3-6 months following the replacement of the manual lure with the auto-lure pump (ALP) in August 2016. Bait and gas cylinders have been replaced at six monthly intervals.

## Outcomes

During this first year, it was clearly established that the A24 was reliable, functional, and culled a slightly higher number of rats, both ship rats and to a lesser extent kiore, to previous years using standard trapping. Ship rats were the predominant animal culled by the traps with just 17 (10%) of the 169 carcasses counted over the year identified as kiore.

Eleven cameras established proof of killing and provided footage of the range of behaviour exhibited by rats when they encountered the devices. Evidence of the predation of rat carcasses by pigs, cats, and morepork was captured indicating that the number of rat carcasses found is likely to be less than animals killed.

However, the 25 unit tracking tunnel monitoring undertaken five times over the year indicated that rat numbers remain at higher levels in this pest managed area, and are significantly higher than adjoining pest managed areas where differing methodologies are being employed.

In December 2016, Goodnature responded to the high tracking tunnel indices and worked with the Windy Hill field team to pre-bait all the A24s in the project area. This may have assisted the 4% reduction in the tracking tunnel index between November 2016 and Jan/Feb 2017.

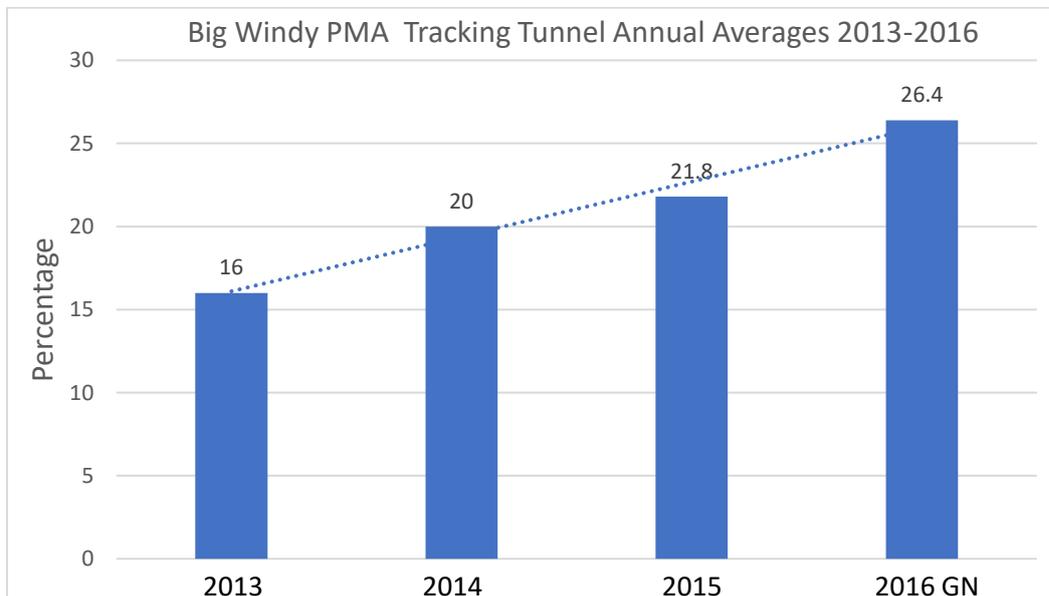
### Tracking Tunnel Results for Goodnature Project area. (Table 1)

	Jan/Feb 16 (pre- management)	Apr 16	Jul 16	Sep 16	Nov 16	Jan/Feb 17
Tracking Tunnels	24%	24%	24%	20%	40%	36%
Chew Cards	0%			2%		

*Chew card monitoring was not undertaken in Jan/Feb 2017 since the two previous runs showed no correlation to the tracking tunnel results.*

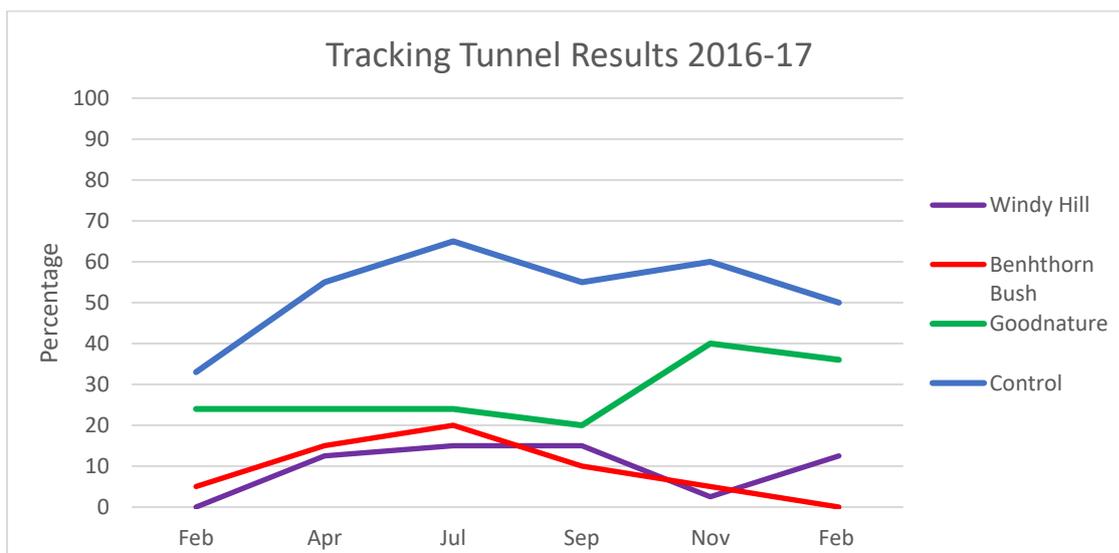
These tracking tunnel results show the rise in rats tracked over the year. Historic Sanctuary catch data has shown the rise of kiore numbers in direct relationship to declining ship rats and this may be the case for this project area. Footage from the cameras showed that kiore were considerably more cautious when encountering these devices than ship rats.

A comparison of annual tracking tunnel averages for the Big Windy GN project area (Graph 1)



The Big Windy pest managed area has historically been a challenging area to manage with annual average tracking tunnel indices remaining comparatively high. Graph 1 shows the progression over the last 4 years with the 2016 Goodnature A24 trap results being the highest to date. However, rat densities in 2016 were higher throughout the Sanctuary due to the abundant food availability driven by a wet summer and the same average may have resulted irrespective of the current methodology.

Tracking Tunnel results compared with other Pest Managed Areas (Graph 2)



Graph 2 shows the Goodnature tracking tunnel results in relation to the unmanaged Control area, and adjoining Windy Hill and Benthorn Farm pest managed areas.

In 2016, the Windy Hill pest managed area methodology was comprised of 50:50 alternating stations of traps and Rat-Abate (50 gram diphacenone). This was varied over the winter to a trial of bait stapled into trees providing bait in a more 'natural' way for rats versus them having to enter a station. Research has shown that rats are hesitant to enter any type of station and even more so when natural food availability is high which was the situation after an unusually wet summer. At the same time, the Benthorn Bush pest managed area methodology comprised 50:50 alternating traps and Feracol (20gram cholecalciferol) which was also presented in trees over the winter. For the last four years, the Sanctuary has been researching the optimal weight of multi-feed bait that is required to maintain rats at low levels. A review of our data by Brent Beaven and Nick Graham in October 2016 indicated that 100 or 150 grams worked more effectively than 50 grams. Bait weight was increased to 100 grams from November on and this, coupled with the bait presented in trees, may have contributed to the low tracking tunnel index of 2.5% in Windy Hill in November. Bait weight remained consistent at 20 grams of Feracol (a single feed bait) in Benthorn Farm pest managed area so the tracking tunnel results here of 5% may be attributed to the baits in trees.

#### Auto-Lure Pump (ALP)

The change to the ALP in August 2016 resulted in considerable savings of time and labour. Rather than the previous monthly checks, between August and the replacement of the ALP in February 2017, the traps were checked only in October, and in passing in September and November when the tracking tunnels were done. Each trap was also checked in December when the pre-feed was undertaken. There were some observed issues with a few of the pumps – the bait congealed around the trigger pin and resulted in uneven or low bait flow, some appeared to run out before the six months, and a few didn't work at all. This was reported to Goodnature. Overall, the ALP appeared to operate effectively.



*Bait congealed around the trigger pin of the ALP*



*Bait dribbling from the A24 after installation of the auto-lure pump.*

#### Gas Cylinder and ALP replacement

This was carried out in February 2017 by the Windy Hill field team assisted by Darren Peters from DoC and Nick Graham from Goodnature. Two traps had failed from a suspected manufacturing fault and were replaced by Goodnature.

### Trap Placement

During the pre-feed run in November, several traps that had been established on less stable trees such as pongas or on trees that had since fallen over, were re-sited. Around 100 traps had the access for rats made easier by placing sticks and rocks underneath the entry to the trap. This was considered more efficient than lowering all the traps on the tree as had been previously mooted. Initially traps had been set higher than normal because of the potential risk to rails. No rails have been spotted in this area.

### Discussion

- No definitive picture of the efficacy of the A24 traps in this habitat with our particular suite of pests can be deduced at this stage. To make clear statements about the efficacy of any methodology or any patterns that may emerge requires longer term monitoring. Results are impacted by weather events such as storms and droughts, the resulting change in the dynamics between pests, and seasonal variations. The Big Windy Goodnature project area tracking tunnel results for 2016, while higher than previous years, are arguably part of a trajectory that may have occurred irrespective of the method used to cull rats in this area.
- There is considerable variability in the results between pest managed areas that are adjacent to the Goodnature project area and within contiguous bush. For example; in 2015 in the Goodnature project area 20 grams bags of Feracol (cholecalciferol) and traps resulted in a 22% average for the year. In the adjoining Benthorn Bush pest managed area using the same methodology the annual tracking tunnel index was just 5%. While there are differences in aspect, the bush composition is similar, and the management was consistent so these differences remain a mystery.
- Kiore present a challenge in terms of catching and it may be that the rise in tracking tunnel indices in the Goodnature project area is related to the reduction in ship rats and the corresponding increase in kiore. Footage indicates that kiore are less likely to enter a trap and this is supported by kiore catches representing just 10% of the total catches.
- Historically, trapping alone has not proved to keep the two species of rats at low levels in the Sanctuary and this may be the case even with the self-setting A24s. The addition of toxins combined with traps has proved to work effectively in other pest managed areas.

### Next steps

- The project has eleven more months to run.
- ALPs and gas cylinders will be refreshed in August 2017.
- To find out the composition of ship rats and kiore in the project area I suggest that two trapping lines are reactivated, checked monthly, and the rats identified for 3-6 months.

Thank you, Nick Graham (Goodnature), Darren Peters (DOC), Auckland Council, and the Great Barrier Local Board for your involvement and support of this very worthwhile project. Thank you, also, to Kevin Parsons, Rachel Wakefield, and Henry Cookson for their diligent work as the Sanctuary field team.

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