



# Wasp control operation, Ark in the Park, Waitākere Ranges 2016

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## Overview

Ark in the park is a volunteer based ecosystem restoration project covering 2100 hectares of the Waitākere Ranges (see map 1). Mammalian predator control is undertaken to allow native plant and animal species to recover. Where species have been lost from the Ranges, assessments are undertaken and species are reintroduced if suitable. So far whiteheads/popokpotea, North Island robin/toutouwai and kōkako have been reintroduced.

Vespula wasps, both German wasps (*Vespula germanica*) and Common wasps (*Vespula vulgaris*) are a problem throughout New Zealand, including across the Waitakere Ranges.

Wasps are significant predators of our native invertebrates and result in painful and potentially life threatening stings to people in the bush. Due to this threat the Ark has to significantly reduce our volunteer field work programme each year during wasp season (usually late February to mid April).

Vespex wasp bait became available in late 2015, offering a proactive form of protein based insect predator control not reliant on finding wasp nests.

The process and results of the control operation at the Ark are described in this report.

The video on the Merchanto website provides a useful overview of the whole process, it is available here: <http://www.merchanto.com/vespex-information.html>

## Planning

Weekly planning sessions were held between Ark staff, volunteers and Council Parks staff. Knowing that we did not have the resources to bait the entire Ark area, an area of 565 hectares of the northern Ark was chosen.

The chosen area has previously had high wasp numbers and is an area of high public use on the walking tracks, at the picnic tables, swimming areas and in the car park.

As per directions on the Vespex label any treatment area of 300 hectares or above should have stations installed on a 300 x 50 metre grid. As the Ark has an existing grid of rat bait stations on a

100 x 50 m grid spacing we were able to install wasp bait stations at every rat bait station on every 3rd bait line to achieve the required grid coverage.

There were existing line descriptions for these bait lines so we were able to update these, an example of a line description is included as Map 5.

Wasp stations, bait wells, applicator sticks, bait and signage was purchased online from Mercento, see table 2 for a cost summary.

Bait must be placed in bait wells in the approved stations and left in the field for 3 to 8 days, after which all bait must be collected and disposed of in a suitable landfill.

The day the bait is put out counts as day 1 and the first 3 days must be fine weather.

Mercento recommend that all the poison is put out in one day, before 12pm to allow this to count as day 1 and allow the wasps plenty of foraging time.

While monitoring was being undertaken stations and bait were ordered to ensure they were at the Ark when needed.

Stations were installed well in advance by Ark volunteers. It would not have been possible to install the stations and put the bait out on the same day due to needing to have the bait out by 12pm. Installing stations in advance also provided the opportunity to check that all lines were well maintained and well marked. This was especially important as on baiting day some of the helpers were Council Biosecurity and Parks staff from other parks who were not familiar with the Ark.

Where lines needed to cross the Waitākere Golf Club and there was therefore no existing bait station grid, trees were chosen on the golf course that best fitted into the desired grid pattern.

## Monitoring

Pre control monitoring is required under the stewardship code for Vespex use. The video sets out the methodology for this in detail.

20 jar lids were placed 5 metres apart to form a monitoring line of 100 metres.

Two sites were chosen for this, both sheltered bush margin areas.

Monitoring via this method was required for 7 weeks before the required threshold of 20 wasps in total on the lids was reached (see table 1).

Guidelines issued by Mercento state that fish based cat food should be used as the lure. It was found that cat food was attracting only low numbers of wasps to the lids, despite wasps being seen flying in the area. It is known that wasps are highly attracted to rabbit meat so as an experiment rabbit meat was added to the lids. As shown in the table this increased the number of wasps visiting the lids.

This was reported to Mercento who advised us that as this still signifies protein take it was a suitable substitute for cat food.

On the 3rd of March this threshold was met (and exceeded) as 35 wasps were recorded on the lids.

The weather forecast was checked to ensure that Monday, Tuesday and Wednesday were forecast to be fine and still (days 1 to 3 of the control operation).

### **Recommended alternative monitoring technique for the future**

From the vespex operations run in North Island forests it has been discovered that the lids technique is not sensitive enough for North Island wasp densities. This meant that although there were reasonably high wasp numbers in the bush we did not reach the monitoring threshold until quite late in the season (early March). The alternative monitoring method suggested will allow us to put the bait out earlier, which will benefit both invertebrates and people at the Ark through a longer period of reduced wasp numbers before their numbers decline naturally in Autumn.

The alternative method will use Delta traps and tinned tuna rather than cat food. The traps should be left in place for 48 hours. It has been advised that rather than a certain threshold number being used to indicate it is time to put the bait out, a dramatic increase in wasp numbers should be the trigger point.

### **Consultation and notification**

Requirements for consultation differ depending on the land owner.

As required the Ministry of Health were notified.

For courtesy the Ark made contact with the local iwi Te Kawerau a Maki, local residents and local bee keepers.

As a major landowner in the area (but not landowners of part of the treatment area) Watercare were notified.

Ark volunteers were kept up to date as the project progressed via the weekly email bulletins.

As required, signs were placed at all public entrances to the treatment area.

Additional signs for information were placed at the Waitākere Golf Club and the Ark volunteer base.

### **Preparation for baiting**

As vespex was supplied in 10kg pails it was necessary to decant it into smaller containers so that we would have enough containers for each pair of baiters. Vespex must be stored frozen and defrosted the day before baiting. Note that the manufacturers are working on modifying the product so that it doesn't need to be frozen.

### **Control**

The weather on Monday the 7th of March (day 1) was still and warm but was overcast. Full sunshine would have been preferable.

On day one 56 people assembled at the Ark volunteer base at 6.30am to allow plenty of baiting time before the 12pm recommended cut off time. Helpers were a mixture of Ark volunteers and Council Parks and Biosecurity staff.

The Ark volunteer coordinator matched people with a buddy and a suitable line.

Before setting off each person practised filling a bait well as 20-30grams were required in each station. The bait wells are marked with a guide line to show how much vespex should be put in each bait well, however it is difficult to assess this and remain consistent in the field so extra bait had been ordered to ensure baiters did not run out part way through the line.

Two people walked each line. This health and safety incase of injury or being stung by wasps from existing nests, made filling bait wells easier.

Note that according to the manufactureres the short amount of time people spend in an area filling a bait station means that they are very unlikely to be more at risk of wasp stings compared to simply walking along the route.

## Post control work

### Bait collection and disposal

On days 4 and 5 all the lines were walked and the amount of wasp bait uptake was recorded, see map 4.

Bait and the disposal bait wells were brought back to the Ark volunteer base where they were bagged and disposed of at the hazardous waste facility.

### Sign removal

When all bait was collected from the field the warning signs were collected from the public entrance points, golf course and Ark base.

### Post control monitoring

Advice was obtained to continue weekly monitoring via the lid method for one month after the bait was put out.

Additionally three active wasp nests found on the baiting day were monitored for a month after baiting. These three nests remained active throughout the month and afterwards. There was a drop in activity at one of the nests but the other two remained very active.

An online survey was sent to all those who had participated in the wasp control operation to obtain feedback on the process. Results are shown below.

## Monitoring results

**Table 1**

Date	Number of wasps on cat food	Number on rabbit	Total	Location	Comments (weather etc.)
27/01/2016	0	NA	0	AN - Golf course margin	Fine
4/02/2016	1	NA	1	AN - Golf course margin	Fine
12/02/2016	0	NA	0	AN - Golf course margin	Fine
16/02/2016	1	NA	1	B ridge	Fine
23/02/2016	0	6	6	AN - Golf course margin	Fine
26/02/2016	0	8	8	AN - Golf course margin	Fine

26/02/2016	0	7	7	Ranger station	Fine
3/03/2016	0	35	35	AN - Golf course margin	When rabbit was gone 1 wasp went to cat food
<b>7/03/2016 poison deployed</b>					
8/03/2016	2	3	5	AN - Golf course margin	Fine
9/03/2016	0	5	5	AN - Golf course margin	Fine
15/03/2016	0	1	1	AN - Golf course margin	Fine
22/03/2016	0	0	0	AN - Golf course margin	Warm, windy
30/03/2016	0	0	0	AN - Golf course margin	warm, fine and still
5/04/2016	0	1	1	AN - Golf course margin	warm, fine and still

## Information sent to helpers

Written guidelines with links to instructional videos made by Ark volunteers were sent to helpers ahead of time covering the following:

- General wasp safety principles
- Station installation instructions
- Bait deployment instructions
- Bait collection instructions

## Wasp control feedback from participants:

Results of the online questionnaire sent to people involved are shown below. Respondents were asked to provide comments on the various aspects of the process.

### Station installation:

Positive comments:

- Stations flat packed
- Station easy to fold
- Instructions

To be improved:

- Nothing reported

### Bait deployment

Positive comments:

- Well organized
- Flagging tapes, ropes, visibility of stations
- Instructions
- Easy to deploy

- Fiddly with the double plastic bag

To be improved:

- Difficult not to spill

General Comments:

- Use a laminated sheet under the trays to collect the spilled bait
- It could be helpful for accurate bait take recordings and ease of deployment to have pre-measured volumes of bait in the transparent containers. They could then be sealed somehow with plastic or foil wrap which you could pull off at deployment stage. They could then be removed and measured better for bait take.
- Develop new way of deployment. Pre-packaged or caulking gun.
- Have 2 resalable plastic bags: one for the bait and one for the gloves

## Bait collection

Positive comments:

- Signs, maps, everything provided
- Sealed plastic bag to collect the bait

To be improved:

- Difficult to assess how much bait taken

## General comments:

- Very well organized
- Enjoyed participating
- It would be interesting to know if any of the actual nests located were subsequently shown to be inactive (or were tackled directly by usual means)
- The height of the station made it easier to deploy and collect the samples if they were a little on the low side, approx. a metre off the ground. Made it easier to install and safer when removing.

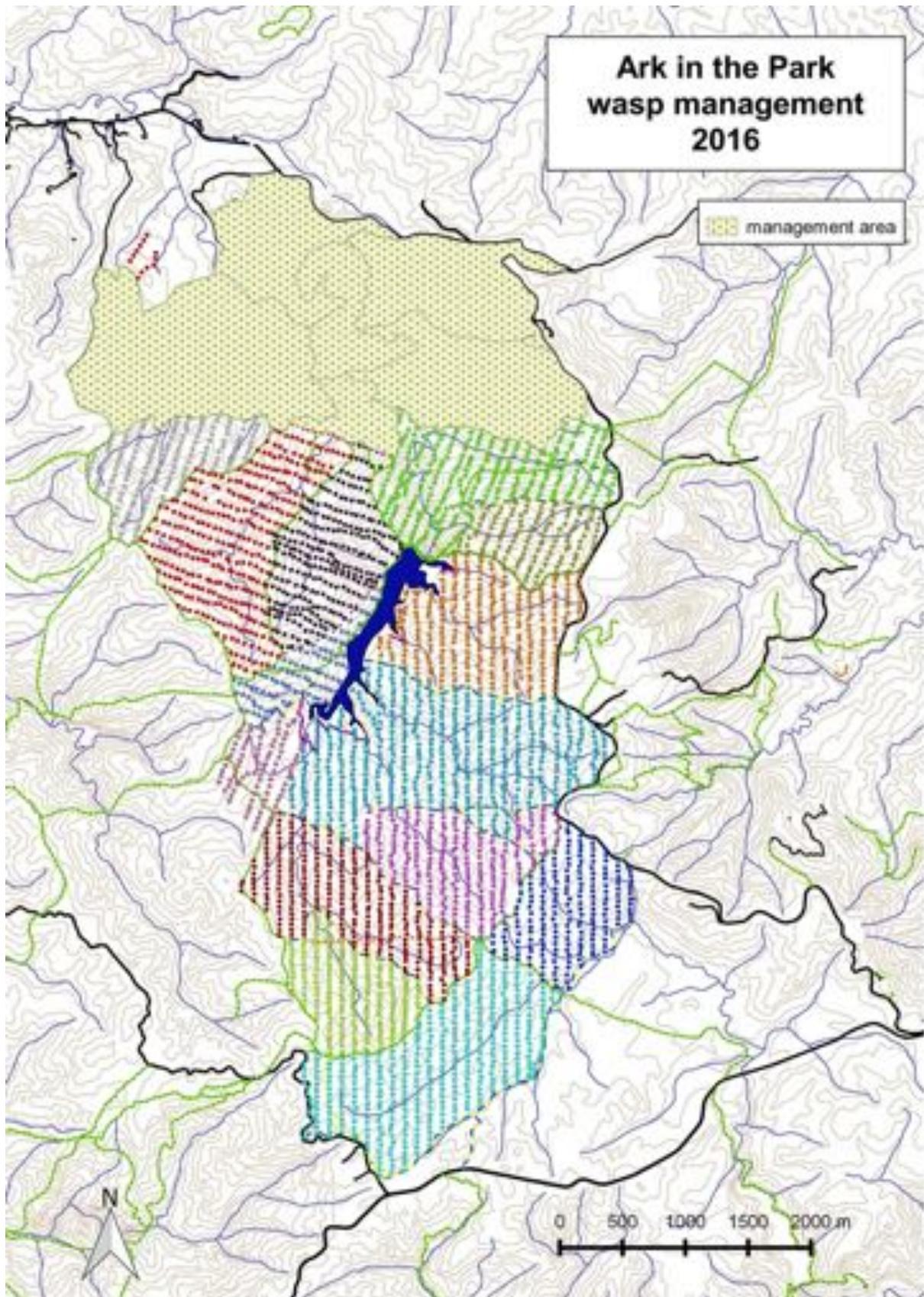
- End of survey-

## Overall comments and follow up questions

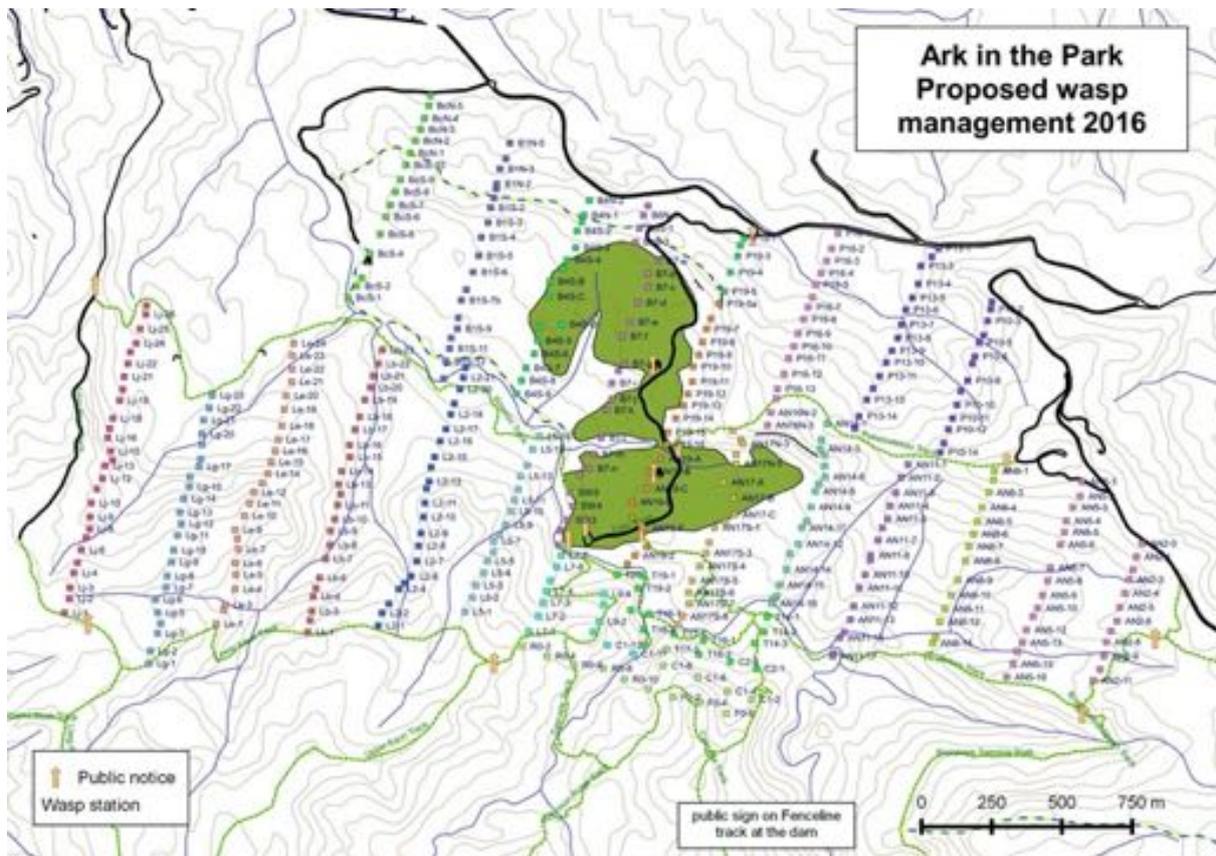
- It was noted that uptake of the wasp bait was very low.
- At a meeting of the New Zealand Wasp Tactical Group a monitoring method using delta traps was presented. It was thought this could be a more sensitive measure and more suitable for North Island wasp densities.
- Could Vespex without the toxic ingredient be used as the monitoring lure, similar to pre feeding for 1080 and other mammal toxin operations?
- Filling bait wells with bait would be far easier and there would be less risk of spillage if the bait was pre filled into the well with some kind of removable lid, similar to foil lids on small butter containers. Merchento are considering making this change.



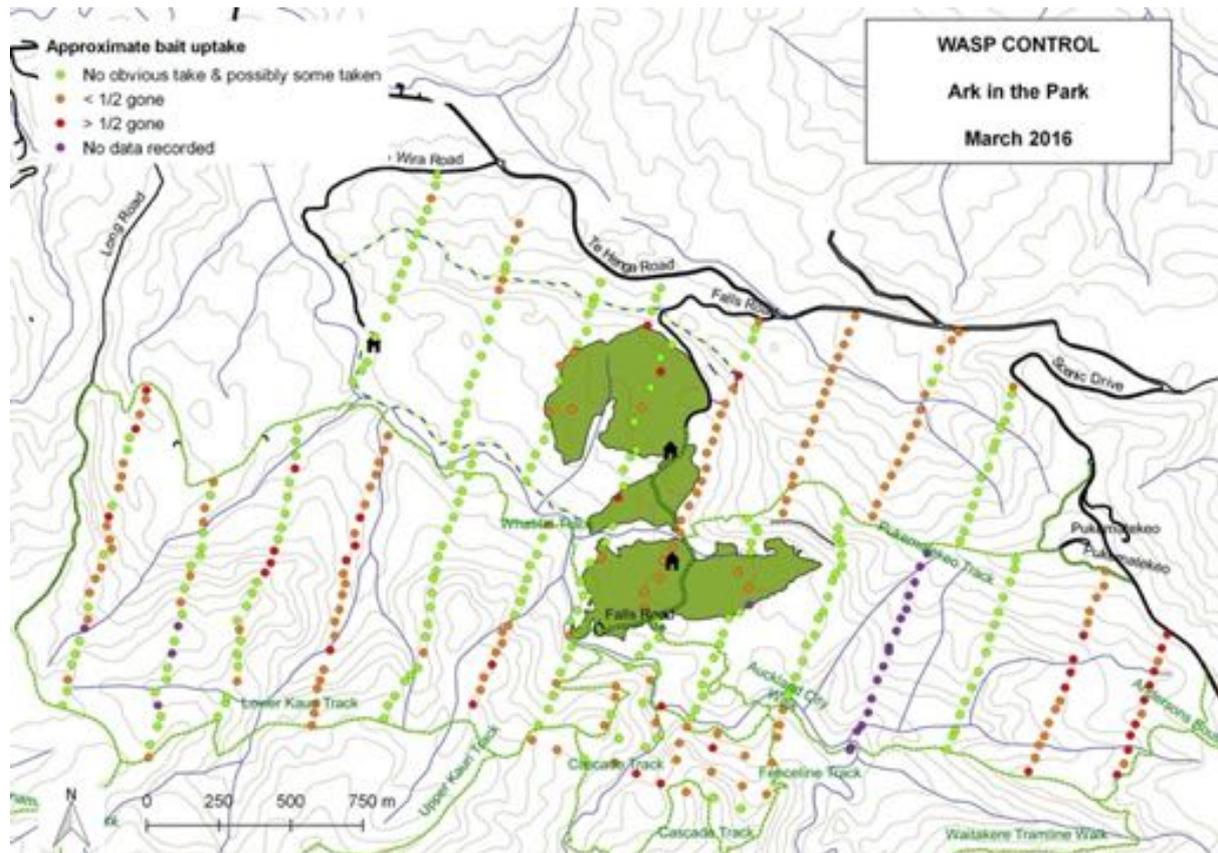
Map 2 Area of the wasp control operation – shown as the ‘mangement area’



### Map 3 Wasp bait station locations



## Map 4 Vespex uptake



## Project costs

Table 2

Item	Number	Unit cost	Total cost	Funder
Approved user registration	2	66	132	Ark
Wasp stations	450		1641.61	Ark
Signs	15		180	Ark
Containers*	25		7.5	
Cat food - monitoring	14		28	Ark
Bait	10 x 1.5kg		1631.22	Ark
applicator sticks	20		7.5	Ark
nitrile gloves			88.65	AC Parks
cable ties			12.83	AC Parks
clouts	2kg		35.99	Ark
First aid kits	20	20	400	AC Parks

Other				
Printing A4 x 30 backpack labels	30		30	F&B

Printing line descriptions	25 colour		25	Ark
Laminating	55		55	Ark
Printing MSDS	300 B+W			AC Parks
Printing A3 x 2			12	Ark
plastic folders	50		4.99	Ark

<b>Food &amp; groceries</b>				
Antihistamine*	100			
Sunblock	1	13	13	Ark
vegetarian options	3	7.89	23.67	Ark
Mozzie repellent	2	8.99	17.98	Ark
milk	1	4.29	4.29	Ark
biscuits	5	2.99	14.95	Ark
muesli bars pack of 6	4	4.29	37.11	Ark + AC Parks
water 425ml pack of 4	4	6.69	46.71	Ark + AC Parks
Salad			50	AC Parks
Bread			30	AC Parks
Cheese			20	AC Parks
meat		229.45	229.45	AC Parks
			4779.45	

\* donations

<b>Human resource</b>	<b>People</b>	<b>Total hours</b>
Planning	Multiple	108
Station installation including line prep	Multiple	124
Monitoring	4	21
Bait deployment	56	168
Sign placement and retrieval	2	8
bait collection	25	62.5
<b>Total hours</b>		<b>491.5</b>

## Map 5 Example of a line description

<b>Wasp Line:</b>	AN14	<b>No Wasp stations:</b>	18
<b>Wasp station at each rat station.</b>			
<b>Best car park: (drop off)</b>	Ranger station or top of the road leading up Pukematekeo	<b>Start access:</b>	Pukematekeo Tk
<b>Time to line start:</b>	30min walk (middle of Pukematekeo)	<b>Exit point:</b>	Anderson Tk

### Difficulty: moderate—hard

Mostly moderate, with varied and pleasant bush. Last few stations on the side of a scrambly slope, a drop of 2m near the end (with a rope in place), also a stream crossing.

Then, you emerge on Anderson Tk. Turn right (west) toward the Auckland City Walk (ACW). Exit to Falls Rd at the upper entrance of the ACW.

