

# Small mammal monitoring report for Key Native Ecosystem sites

February 2016



greater WELLINGTON  
REGIONAL COUNCIL  
Te Pane Matua Taiao





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Moylan S. 2016. *Key Native Ecosystem Programme – Small Mammal Monitoring Report – February 2016*. Greater Wellington Regional Council, Publication No. GW/ESCI-T-16/40, Wellington.

## Summary

The Key Native Ecosystem (KNE) programme seeks to protect some of the best examples of ecosystem types in the Wellington region by managing, reducing or removing threats to their values. In order to better understand pest mammal dynamics and to ensure that small mammal control is effective, monitoring of rodents and mustelids is carried out at a sub-set of KNE sites where small mammal control regimes are undertaken.

Small mammal monitoring was conducted in nine KNE sites during February 2016. Key results are summarised below:

- The tracking rates for rats were low in all monitored forest sites. Johnsonville Park was the only site to record rat activity over the management target, although the tracking-rate has fallen from 50% reported in August to 15%.
- The mouse tracking rate was generally declining at all sites and often significantly lower than the level reported in the last monitor. This is thought to be a consequence of the rodent population crash seen across the region, following the exponential population increases recorded during the mast year.
- In the Wainuiomata Mainland Island KNE site and the non-treatment (control) site, rat tracking rates continue to drop following the extremely high tracking rates related to the 2014 mast event. Uncharacteristically, there was a corresponding fall in mouse tracking in the mainland island site. Usually mice numbers increase as rat numbers fall, but reports received note that numbers have fallen around the country. This phenomenon is thought to be caused by the population crash mentioned above.
- A similar pattern of decreasing rodent numbers was recorded at the other forest sites (East Harbour Mainland Island and non-treatment site, Belmont Korokoro, Wi Tako Ngātata and Otari/Wilton's Bush and Johnsonville), with the exception of mouse tracking at the Johnsonville site.
- Hedgehog control at Baring Head does not appear to be making a difference to the hedgehog abundance at the site, with the latest tracking rate recorded as 83%. The hedgehog tracking rate was 13% at Belmont Korokoro, whereas previously tracking rates had averaged 40% (from 2011-2015).



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## Introduction

The Key Native Ecosystem (KNE) programme aims to protect some of the best examples of various ecosystem types found in the Wellington region by managing, reducing or removing threats. One of the primary threats to native plants and animals are introduced mammals, including rats and mustelids. Control of pest animals is undertaken at most KNE sites throughout the region, and in order to ensure that the control is effective regular monitoring is conducted.

The purpose of this monitoring is to:

- Report on the effectiveness of small mammal control regimes in forest ecosystems
- Gain a better understanding of small mammal population dynamics in coastal ecosystems
- Provide a trigger for management responses of small mammal populations
- Identify changes in small mammal populations over time
- Compare and determine the effectiveness of different methods of control.

The information contained in this report is used to report on the KNE programme as a whole, inform the management of individual KNE sites and communicate the outcomes of pest animal control to stakeholders such as land owners and community groups.

## Monitoring sites

Monitoring is conducted at nine KNE sites. Seven of these are forest sites and were chosen for regular monitoring because they are important bird breeding areas. Two of these, Western Wellington Forests (Johnsonville Park) and Porirua Western Forests, are also used to trial different control techniques.

The two other monitoring sites are coastal sites (Baring Head/Ōrua-pouanui and Queen Elizabeth Park) which have been selected for monitoring to improve our understanding of pest animal dynamics in coastal environments.

Monitoring site boundaries reflect the management areas at the time the monitoring was established. The boundaries of some management areas (KNE sites) have changed over time, but monitored areas have remained consistent to maintain data continuity while still reflecting what is happening within the KNE site. Both the monitored area and current KNE site boundaries are shown on all maps.

A summary of rodent and small mammal monitoring regimes is provided in Table 1 below.

## Methods and targets

Monitoring of rodents (rats and mice) and small mammals (mustelids and hedgehogs) is undertaken using tracking tunnels, according to the standard Department of Conservation (DoC) protocol, with the exception of two small adaptations as follows:

1. The method for rodent monitoring involves peanut butter being placed in the centre of tracking cards, rather than at the edges.
2. The relatively small size and shape of some monitoring sites has resulted in fewer monitoring lines than is recommended. This means that the resulting sample sizes are sometimes too small to allow standard error (SE) values to be calculated. The affected sites are Queen Elizabeth Park, Wi Tako Ngātata, Western Wellington Forests (Otari Wilton's Bush and Johnsonville Park) and Porirua Western Forests.

For full details of the DoC protocol refer to [Gillies & Williams \(2013\)](#)<sup>1</sup>. Note that field designs were set up using the version of the protocol available at the time of establishment (see Table 1).

### Rodent monitoring:

Rodent monitoring is undertaken over one night. The rodent tracking tunnel index (TTI) is calculated as the average number of tunnels detecting rats (or mice) per line, and presented as a percentage.

It is important to note that this only provides a coarse index of relative abundance, and is not a direct measure of population density. The technique is best suited for providing:

1. Simultaneous comparisons of the relative abundance between similar habitat areas, OR
2. Gross changes in relative abundance at a single site over time.

For Wainuiomata Mainland Island and East Harbour Northern Forest the target for rats is a TTI no more than 5%. For all other sites the target for rats is a TTI of no more than 10%<sup>2</sup>.

However, the variability of rodent tracking is high which means that these targets are to be considered aspirational rather than definitive. Changes in small mammal management should be triggered by consideration of a number of variables (ie, degree of population change, time of year or prediction of a mast season), as well as the monitoring results contained in this report.

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<sup>1</sup> Gillies CA and Williams D. 2013. *DOC tracking tunnel guide v2.5.2: Using tracking tunnels to monitor rodents and mustelids*. Department of Conservation, Science & Capability Group, Hamilton, New Zealand (<http://www.doc.govt.nz/Documents/science-and-technical/inventory-monitoring/im-toolbox-animal-pests-using-tracking-tunnels-to-monitor-rodents-and-mustelids.pdf>).

<sup>2</sup> There is no target applied to mice given the difficulty in controlling mice populations, and the fact that control of rats (the most important factor in protecting bird populations) can sometimes result in an increase in mice populations due to decreased competition for food resources.

Small mammal monitoring:

Monitoring of mustelids and hedgehogs is undertaken over three nights. Unlike rodent monitoring, mustelid and hedgehog data is presented as the percentage of individual tunnels tracked.

**Table 1: Monitoring schedule for the KNE programme**

<b>KNE site</b>	<b>Rodent monitoring</b>	<b>Small mammal monitoring</b>
Wainuiomata Mainland Island	February, April, August, November	November, February
East Harbour Northern Forest	February, April, August, November	November, February
Baring Head/ Ōrua-pouanui	February, April, August, November	November, February
Belmont Korokoro	February, April, August, November	February only
Queen Elizabeth Park	February, April, August, November	Nil
Wi Tako Ngātata	February, August	Nil
Western Wellington Forests (Otari/Wilton's Bush)	February, August	February only
Western Wellington Forests (Johnsonville Park)	February, August	Nil
Porirua Western Forests	February, August	Nil

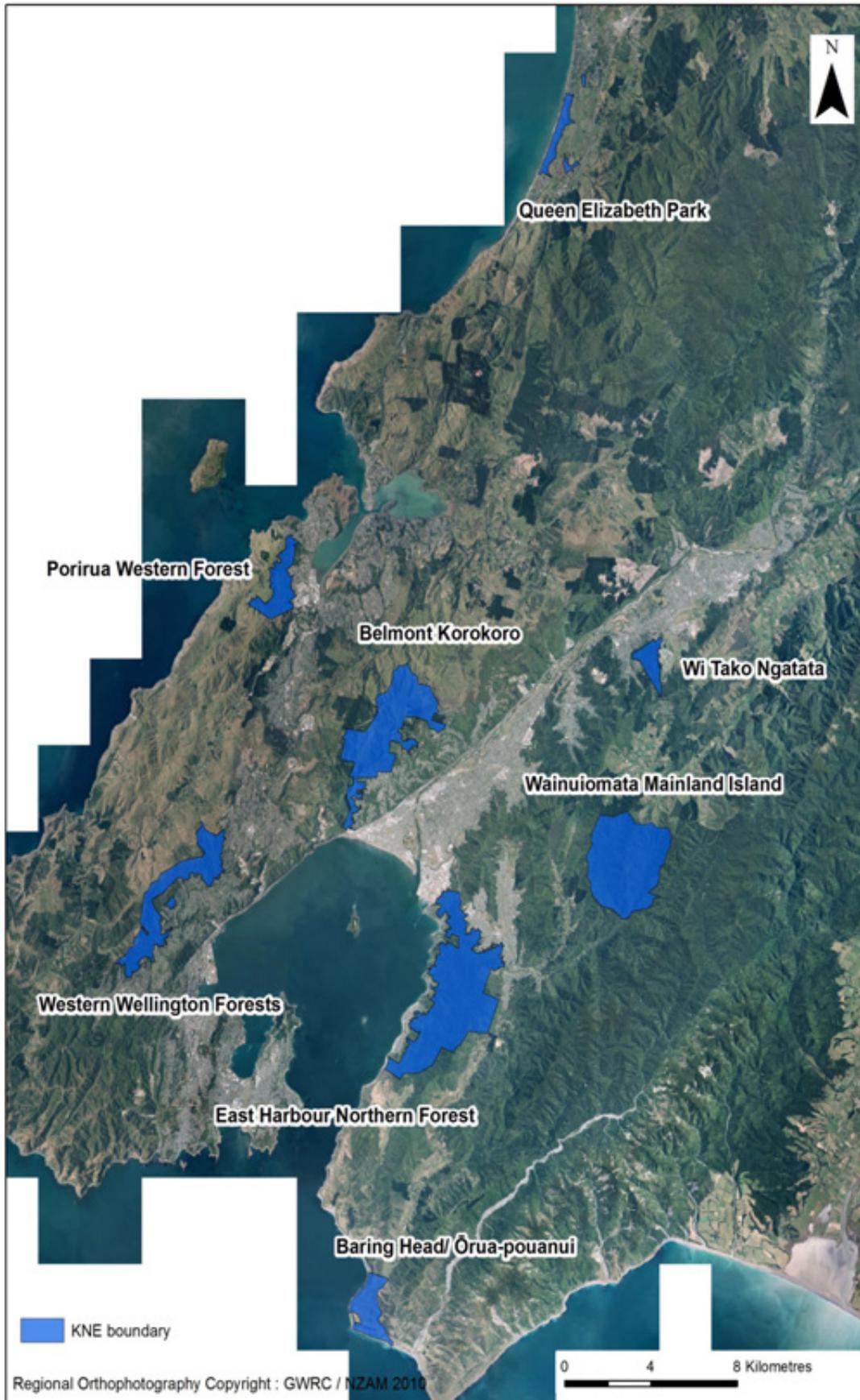


Figure 1: Map of the Key Native Ecosystem sites in which monitoring is conducted

# Wainuiomata Mainland Island

<b>KNE area:</b>	<b>1,200 ha</b>
<b>Area monitored:</b>	<b>Mainland Island: 1,200 ha</b> <b>Non-treatment area: 659 ha</b>
<b>Vegetation type:</b>	Lowland podocarp-rata/beech/broadleaf forest
<b>Surrounding landscape:</b>	Similar native forest/exotic forest/marginal farmland

## 1. Pest animal control regime

The information in this section has been supplied by the Biodiversity and Biosecurity Departments.

### **Current pest animal control regime:**

Rodent control is undertaken using Pelifeed bait stations on a 150 m x 100 m grid and at 50 m intervals around the boundary. Baits containing diphacinone and brodifacoum are used depending on rodent numbers. Possums are controlled using a network of Warrior kill-traps. The inner buffer of 300 m of the site has traps on a 150 m x 100 m grid and the traps in the interior are on a 300 m x 300 m grid. Mustelids are controlled using DOC200 kill-traps spaced at 200 m intervals around the boundary and on lines through the interior that are approximately 1,000 m apart. All mustelid traps and all bait stations and possum traps around the boundary are serviced about every 5 weeks. The rest of the bait stations and possum traps are serviced about every ten weeks (five times a year).

Additionally to controlling possums by trapping, possums are also controlled over the whole of the Wainuiomata/Orongorongo Water Collection Area which the mainland island is part of using aurally sown 1080. Aerial 1080 operations are carried out when possum RTC results approach or exceed 5%, which is generally every five to six years.

### **Pest animal control background:**

The bait station and possum trap network was installed in 2004 and activated in 2005. Mustelid traps were installed in 2005. In response to a mast year in 2014 hand laid 1080 cereal pellet bait and cholecalciferol paste was used to control the sharp increase in rat numbers that occurred. Aerial 1080 operations were completed in 1999, 2005 and 2012.

### **Surrounding pest control regimes:**

Possums are controlled using aurally sown 1080 on one side (Wainuiomata/Orongorongo Water Collection Area KNE site). There is intermittent possum control by TBfree New Zealand using brodifacoum in bait stations and traps on the other side.

## 2. Rodent monitoring results

Rodent monitoring				
Date of monitor: 1 February 2016				
Species	Tracking rate (%TTI) Mainland Island	SE (%)	Tracking rate (%TTI) Non-treatment area	SE (%)
Rats	0	-	56	13%
Mice	1	1	0	-

## 3. Small animal monitoring results (NB: for November and February only)

Small mammal monitoring		
Date of monitor: 5 February 2016		
Species	Mainland Island	Non-treatment area
Mustelids – % of tunnels tracked	0	3
Hedgehogs – % of tunnels tracked:	0	8

## 4. Analysis and comments

The rat-tracking rate continues to fall for rats in both the mainland island and non-treatment site. While the baiting regime may be aiding this decrease, falling rat numbers appear to be a general trend across all sites monitored in the region. This is thought to be caused by a rodent population crash that has followed the exponential increase in rodent numbers recorded during the mast year.

Mice numbers also plummeted following the mast. There have been increased numbers of invertebrates observed that may be resulting from decreased predation pressure from rodents. One tunnel was tracked by a mustelid (a stoat) in the non-treatment area, while hedgehog tracks were recorded in 11 tunnels (mainly on Lines C1 and C2).

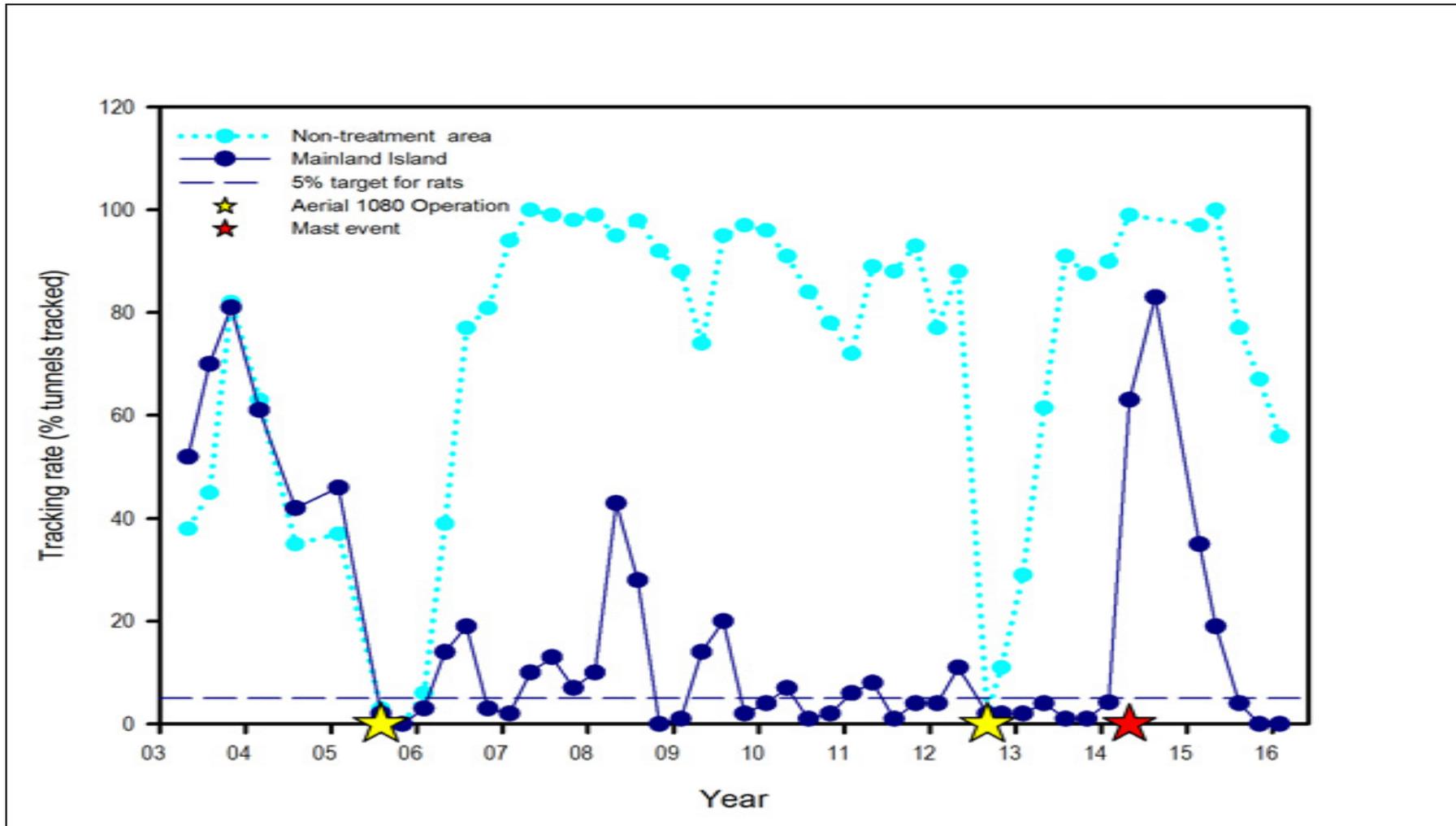


Figure 2: Rat tracking rates in the Wainuiomata Mainland Island KNE site and non-treatment area

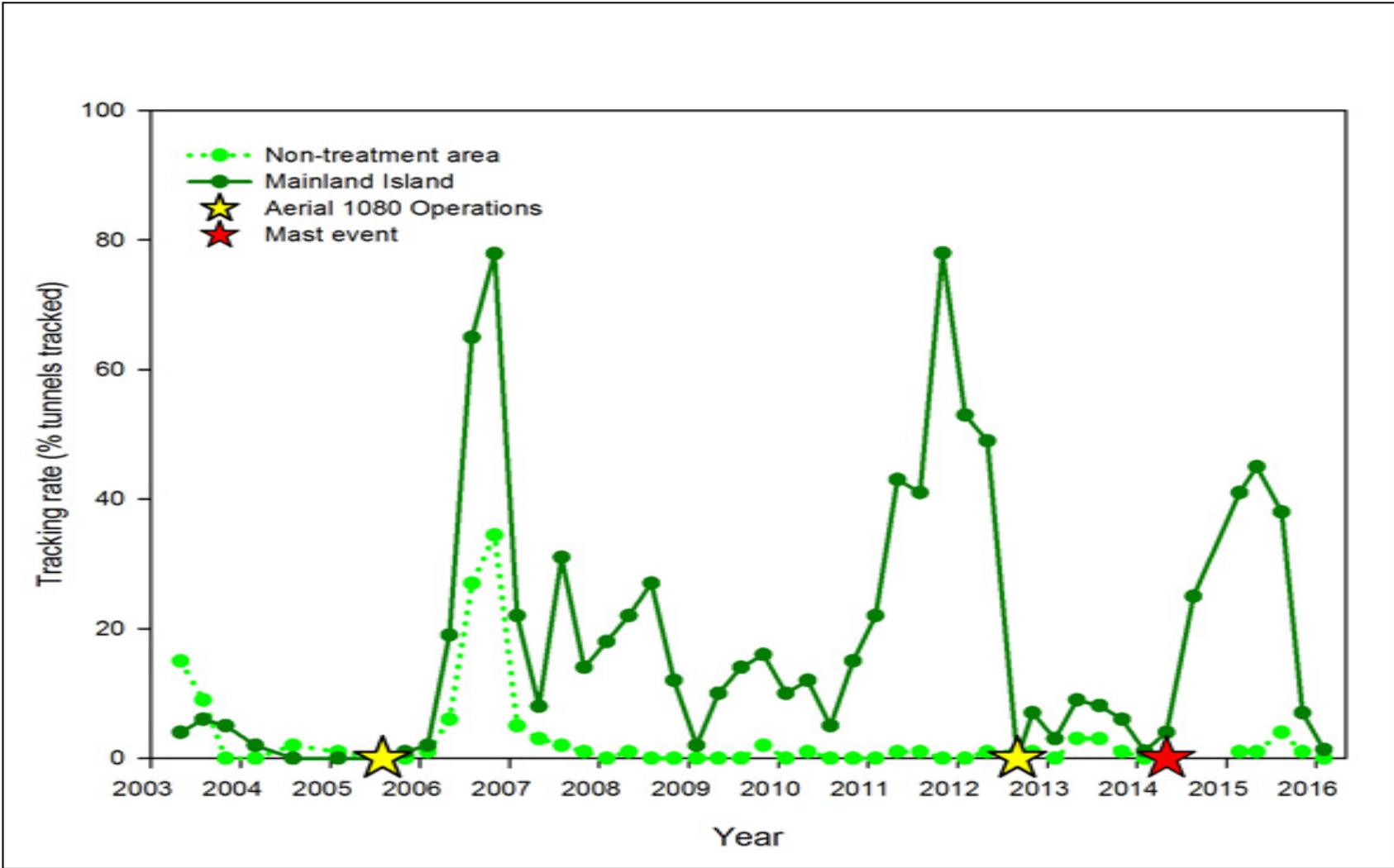
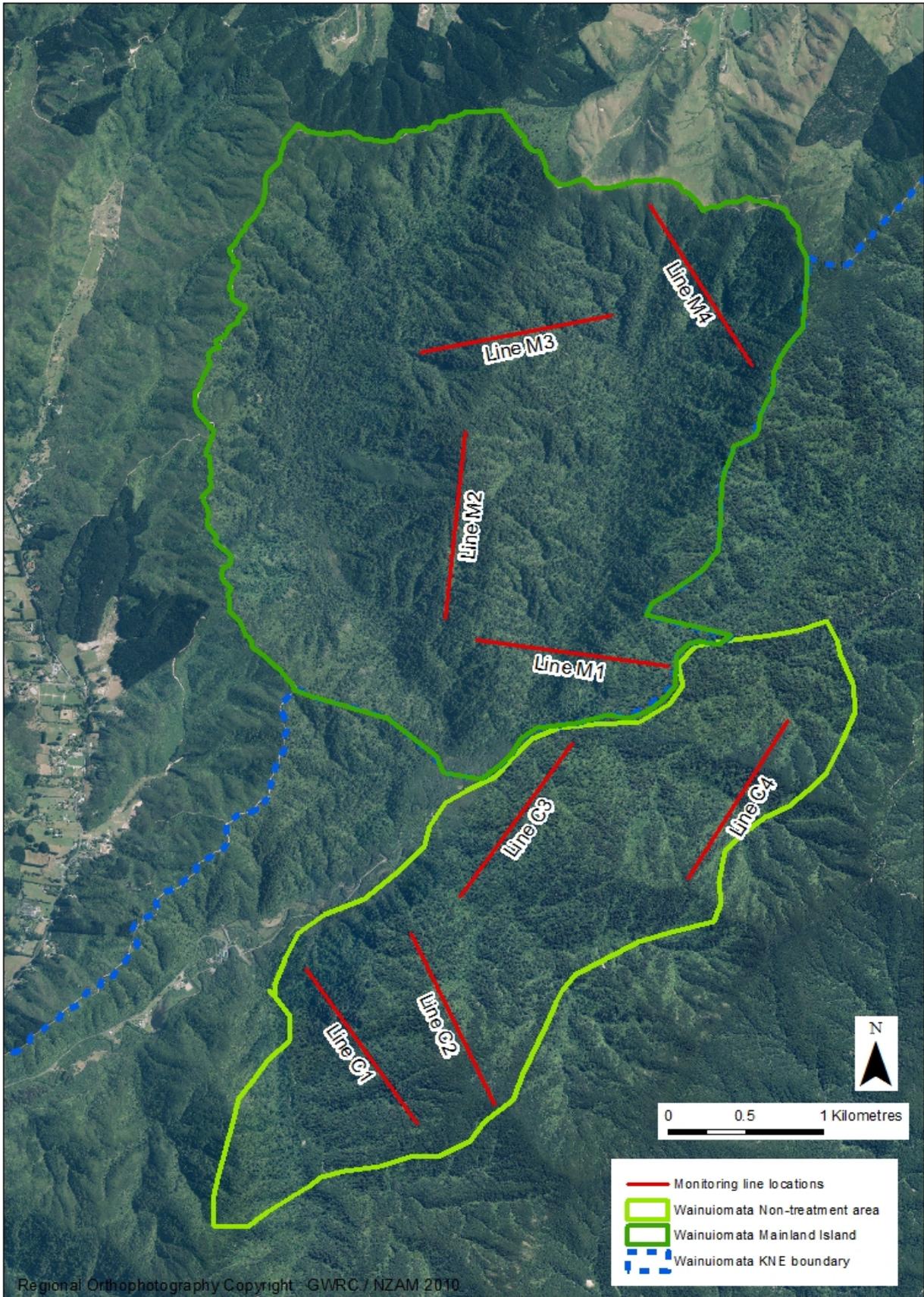


Figure 3: Mouse tracking rates in the Wainuiomata Mainland Island KNE site and the non-treatment area



**Figure 4: Map of Wainuiomata Mainland Island KNE site and non-treatment area showing the locations of the tracking tunnel lines**



# East Harbour Northern Forest

<b>KNE area:</b>	<b>1,646 ha</b>
<b>Area monitored:</b>	<b>Mainland Island: 400 ha</b> <b>Non-treatment area: 350 ha</b>
<b>Vegetation type:</b>	Lowland podocarp/broadleaf/beech-rata forest
<b>Surrounding landscape:</b>	Urban residential, regenerating native scrub, and a small area of beech forest

## 1. Pest animal control regime

The information in this section has been supplied by the Biodiversity and Biosecurity Departments.

### **Current pest animal control regime:**

Possums are controlled throughout the KNE site using Possum Master and Timms kill-traps spaced at 150 m intervals along main ridges and gullies and utilising official and unofficial walking tracks. Bait stations containing either bromadiolone or diphacinone are positioned at each trap site to reduce the consumption of trap baits by rodents. The possum traps and associated bait stations are serviced monthly by volunteers. Rats are controlled within a 400 ha mainland island using bait stations, the southern half on a 100 m x 150 m grid and the northern half on a 50 m x 150 m grid. Bait stations are serviced six times a year. Baits (block, pellet or paste) containing diphacinone, bromadiolone or brodifacoum are used. Mustelids are controlled within the mainland island using DOC 200 kill-traps spaced at roughly 300 m intervals around the boundary of the mainland island and on the main internal ridgeline. Volunteers service the traps monthly.

### **Pest animal control background:**

Possum control was carried out in parts of the KNE site from 1997 to 2001 by contractors and volunteers. Control operations covering the whole KNE site were carried out in 2001 and 2003-04 using leg-hold and kill traps, encapsulated cyanide and cholecalciferol. Ongoing possum control continued from 2004 using kill-traps. Bait stations were installed to control rats in an initial mainland island area of 300 ha in 2005-2006. Additional lines and bait stations were installed to expand the mainland island to 370 ha in 2009 and to 400 ha in 2010. Bait stations were intensified in the northern half of the mainland island to a 50 m x 150 m grid in 2010. The southern half was left at 100 m x 150 m spacing. Mustelid traps have been installed within and around the mainland island incrementally since 2011.

### **Surrounding pest control regimes:**

There is possum and rat control using bait stations filled with brodifacoum adjacent to the northern tip of the site. To the south of the site is a TBfree New Zealand control area.

## 2. Rodent monitoring results

Rodent monitoring				
Date of monitor: 22 February				
Species	Tracking rate (%TTI) Mainland Island	SE (%)	Tracking rate (%TTI) Non-treatment area	SE (%)
Rats	0	-	14	9
Mice	0	-	0	0

## 3. Small animal monitoring results (NB: for February and November only)

Small mammal monitoring		
Date of monitor: 26 February 2016		
Species	Mainland Island	Non-treatment area
Mustelids – % of tunnels tracked:	0	0
Hedgehogs – % of tunnels tracked:	0	0

## 4. Analysis and comments

As for Wainuiomata Mainland Island, rat tracking rates continue to fall in both the East Harbour Mainland Island and non-treatment area. This is considered to be a result of the ‘rodent population crash’ following the exponential increase in numbers during the past year. Mouse populations have also shown the same pattern. No other animals were detected during the rodent or small mammal monitor.

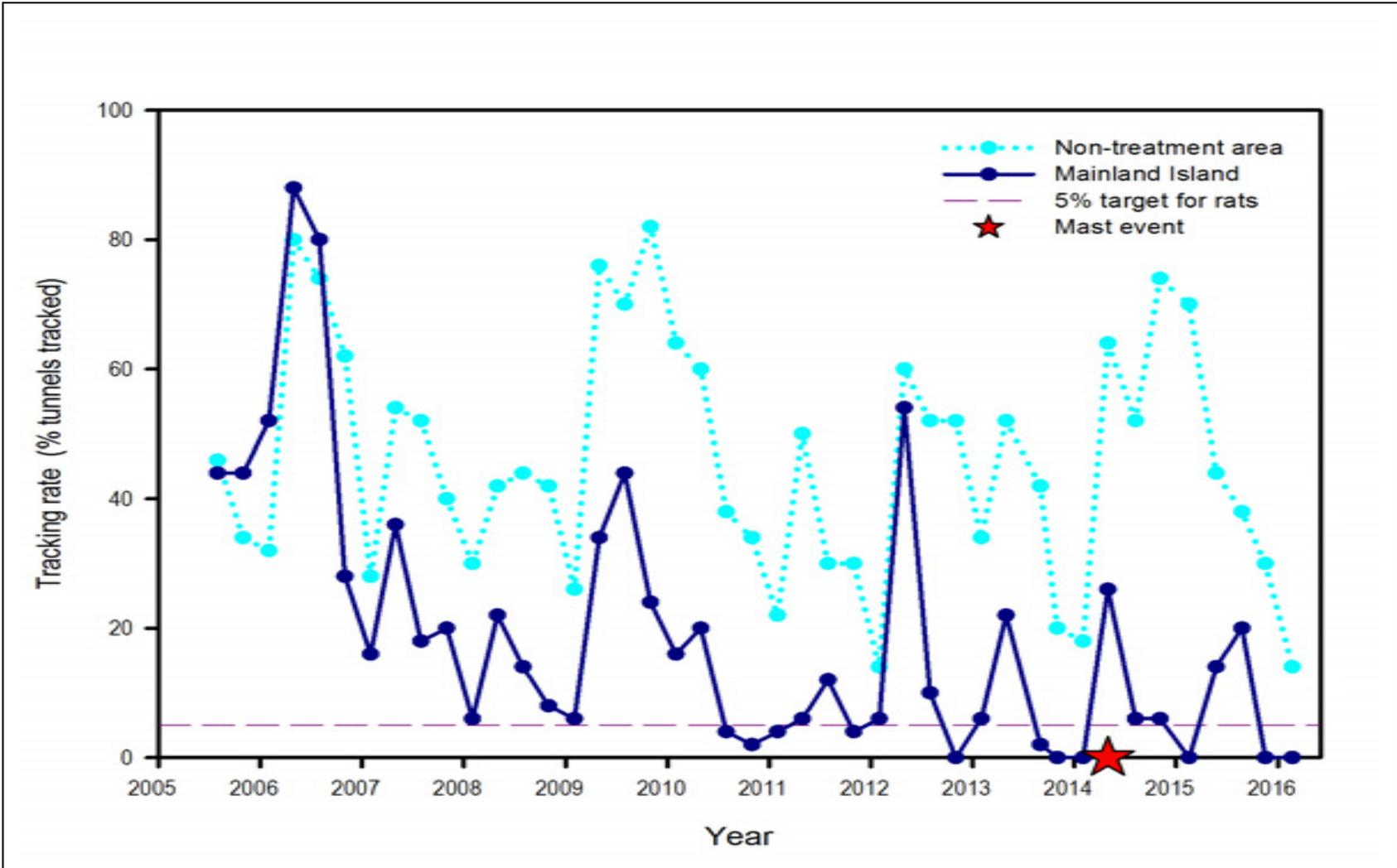


Figure 5: Rat tracking rates in the East Harbour Northern Forest KNE site, Mainland Island and non-treatment area

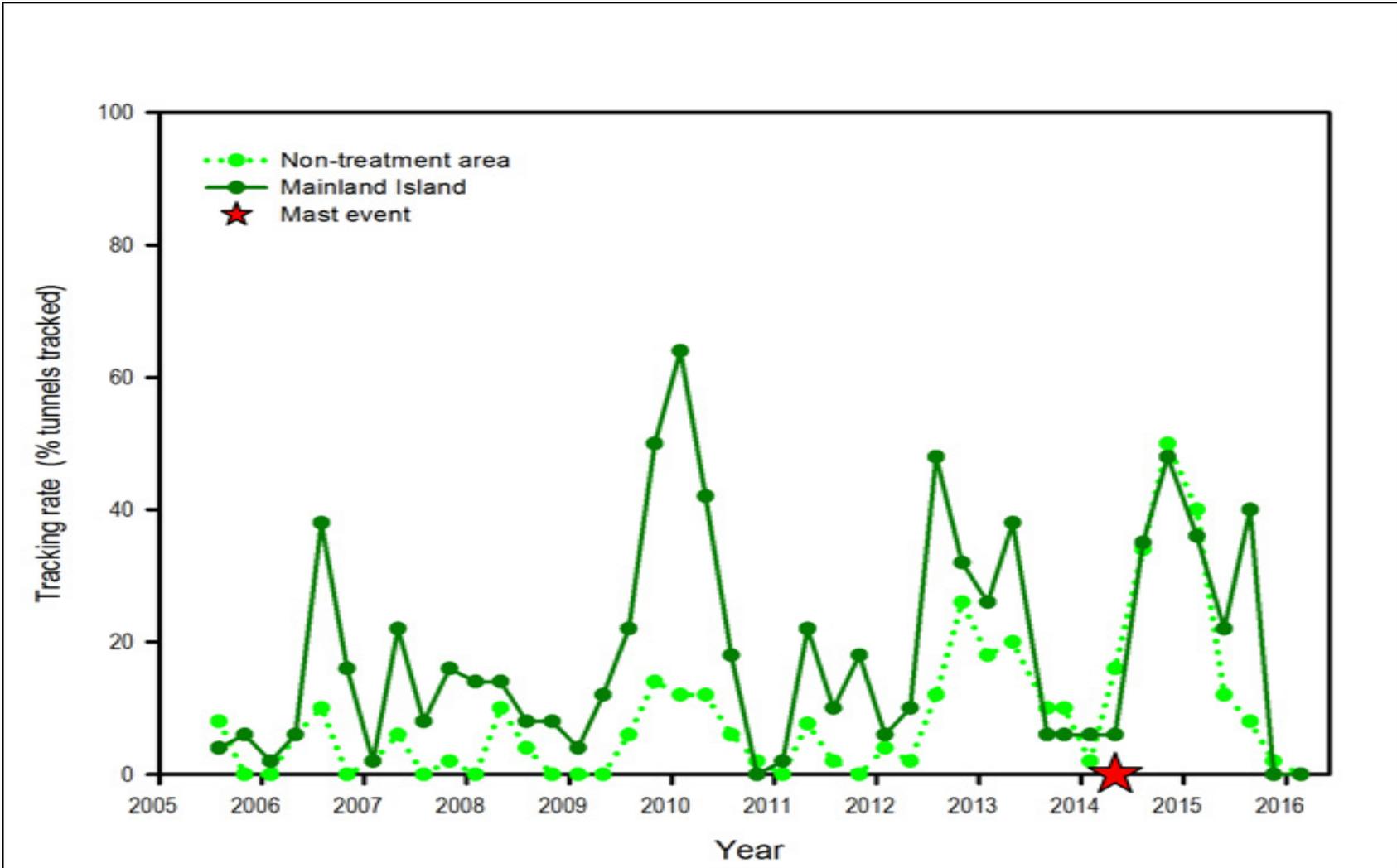


Figure 6: Mouse tracking rates in the East Harbour Northern Forest KNE site, mainland island and non-treatment area



Figure 7: Map of East Harbour Northern Forest KNE site, Mainland Island and non-treatment area, showing the location of tracking the tunnel lines



# Baring Head/Ōrua-pouanui

<b>KNE area:</b>	<b>278 ha</b>
<b>Area monitored:</b>	<b>295 ha</b>
<b>Vegetation type:</b>	Coastal grey scrub, marram-spinifex dunes and semi coastal forest
<b>Surrounding landscape:</b>	Coast, farmland, grey scrub

## 1. Pest animal control regime

The information in this section has been supplied by the Biodiversity and Biosecurity Department.

### Current pest animal control regime:

Mustelids are controlled using DOC200 kill-traps at 100 m spacings on lines across the site. More intensive predator control is undertaken behind the banded dotterel habitat on the coastal platform with a line of DOC200 kill-traps and Timms traps spaced 50 m apart. Traps are serviced fortnightly by volunteers.

### Pest animal control background:

Timms and DOC200 kill-traps were installed in 2013. The site is part of a TBfree New Zealand control area for possums.

### Surrounding pest control regimes:

DOC200 kill-traps are present in the adjacent property to the east. This KNE site is part of a TBfree New Zealand control area, and land to the east is proposed to be controlled 2016.

## 2. Rodent monitoring results

Rodent monitoring		
Date of monitor: 13 February 2016		
Species	Tracking rate (%TTI)	SE (%)
Rats	3	2
Mice	15	6

## 3. Small animal monitoring results (NB: For February only)

Small mammal monitoring	
Date of monitor: 17 February 2016	
Mustelids – % of tunnels tracked:	13
Hedgehogs – % of tunnels tracked:	83

#### **4. Analysis and comments**

The rat-tracking rate remains below 5%, as has been the case since monitoring began in 2011. The low rat numbers at this site appear to be caused by the lack of habitat for these rodents. Mice, on the other hand, show cycles of peaks and falls as breeding occurs from spring to autumn, with numbers dropping as cold weather sets in.

The hedgehog-tracking rate has increased from 68% reported in November 2015 and has reached the same high levels reported every summer. The trapping with DoC200's appears to be having little impact on hedgehog tracking rates.

A ferret and a possum were detected on separate lines during the small mammal monitor, while lizards were detected in ten tunnels. Most of the lizard prints were identified as being from skinks, but geckos were also noted on two lines.

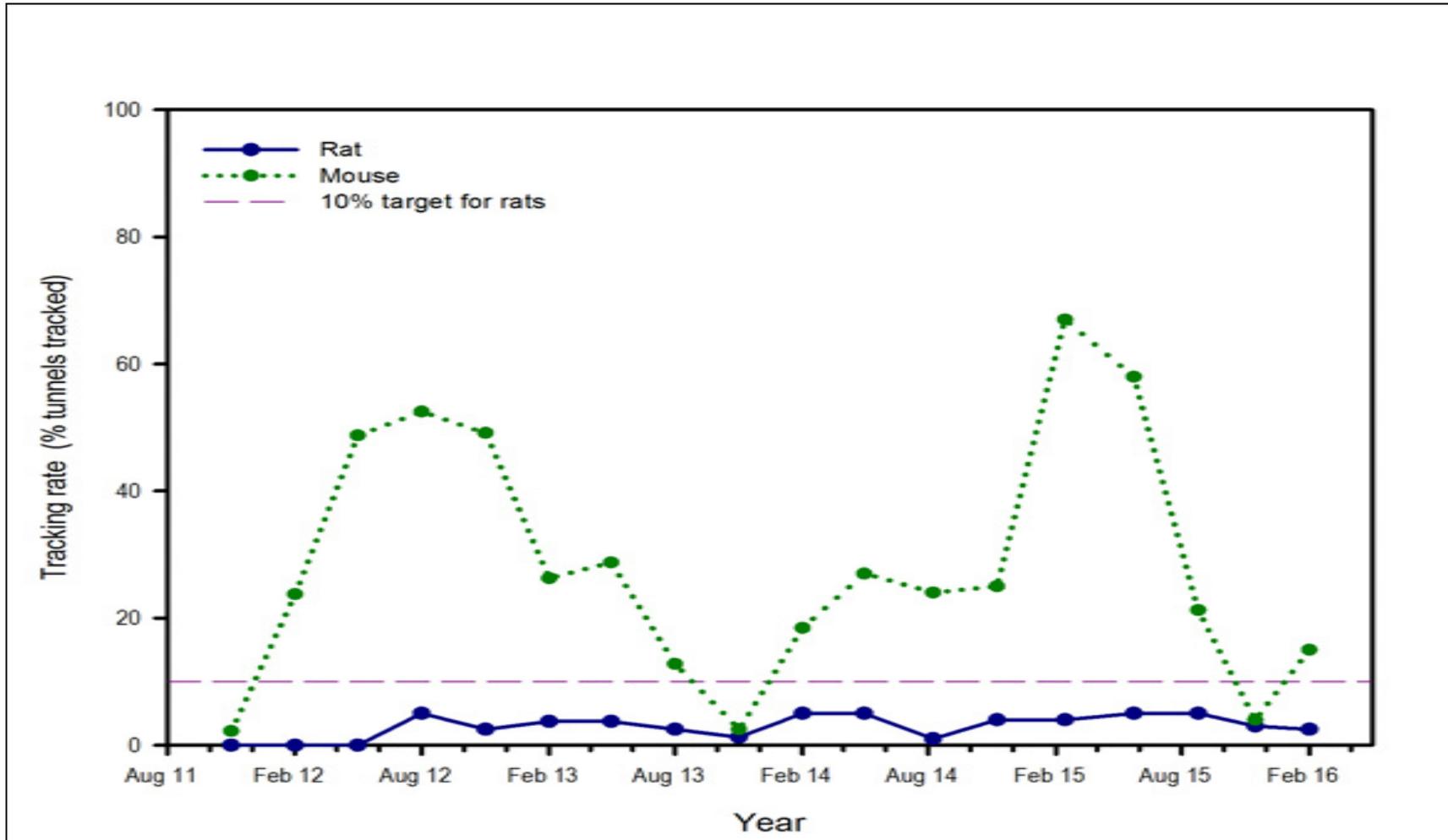


Figure 8: Rat and mouse tracking rates at Baring Head/Ōrua-pouanui KNE site

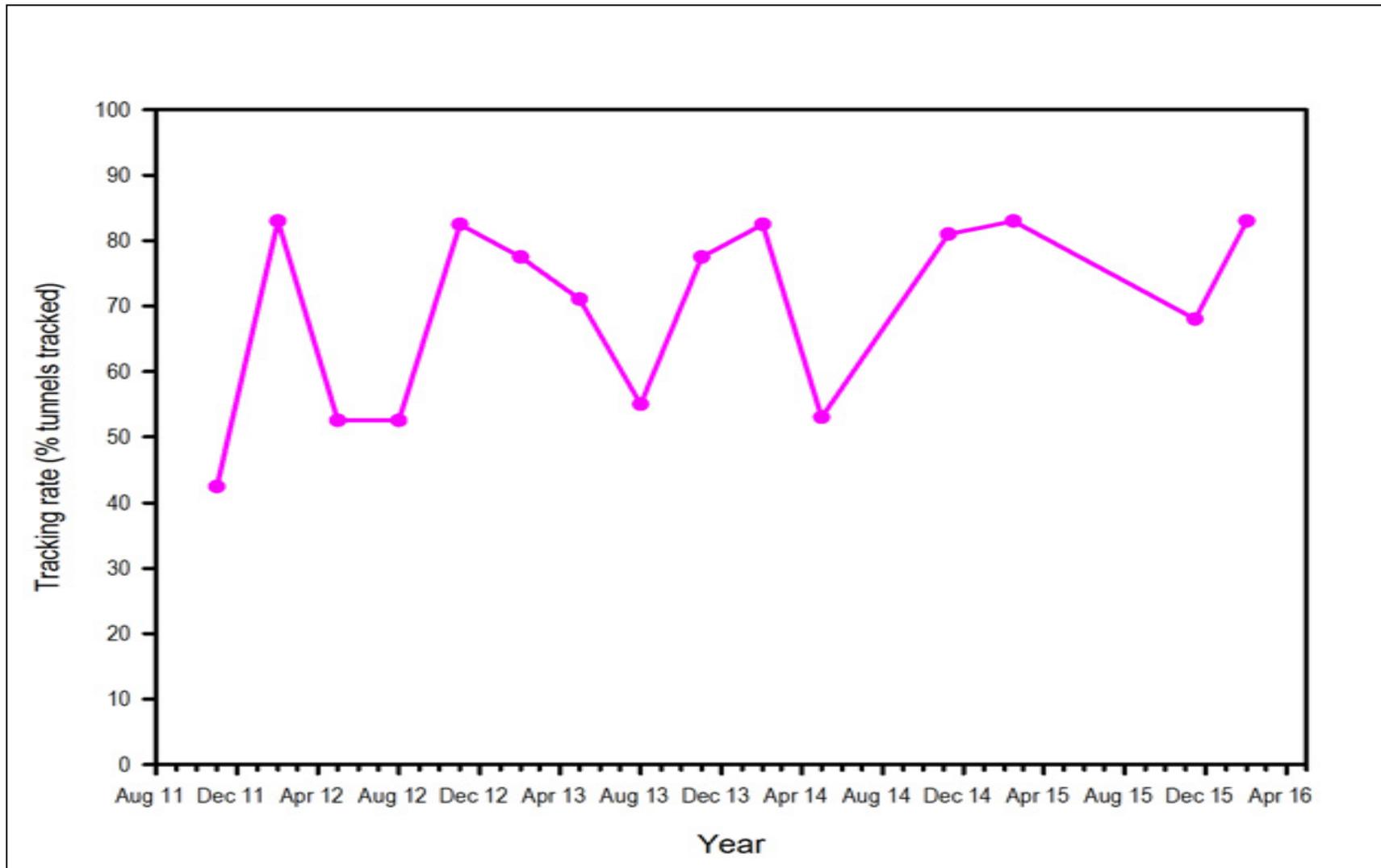


Figure 9: Hedgehog tracking rates at Baring Head/ Ōrua-pouanui KNE site



Figure 10: Map of Baring Head/ Ōrua-pouanui KNE site showing the location of the tracking tunnel lines



# Belmont Korokoro

<b>KNE area:</b>	<b>1,084 ha</b>
<b>Area monitored:</b>	<b>444 ha</b>
<b>Vegetation type:</b>	Rimu-rata/tawa-kohekohe forest and regenerating broadleaf forest
<b>Surrounding landscape:</b>	Urban and peri-urban residential, and farmland

## 1. Pest animal control regime

The information in this section has been supplied by the Biodiversity and Biosecurity Departments.

### **Current pest animal control regime:**

Possums and rats are controlled in about 490 ha (the southern half of the KNE site) using a combination of bait stations and Warrior kill traps on a 150 m x 150 m grid. Bait stations and traps are serviced four times a year using baits containing brodifacoum and bromadiolone in the bait stations. Possums are controlled in the rest of the KNE site periodically by TBfree New Zealand.

### **Pest animal control background:**

An initial possum and rat control operation was carried out in 2004 in about 340 ha of the southeastern part of the KNE site using encapsulated cyanide and cholecalciferol. Ongoing control using bait stations, brodifacoum, and pindone then proceeded. A further 150 ha on the western side of the KNE site were added to the control regime in 2009. Kill-traps replaced toxins for possum control and bromadiolone blocks were used for rat control in about half of the site (eastern) from 2011 to increase the efficiency of servicing the control network. Brodifacoum use throughout the control area was recommenced in 2014 to restrain increasing rat numbers. A possum control operation was carried out in the northern half of the KNE site in 2014 by TBfree New Zealand.

### **Surrounding pest control regimes:**

Possums are control to the north of the KNE site periodically by TBfree New Zealand. Ongoing possum control using brodifacoum in bait stations is carried out in urban reserves to the west and east by Wellington and Lower Hutt city councils respectively.

## 2. Rodent monitoring results

Rodent monitoring		
Date of monitor: 13 February 2016		
Species	Tracking rate (%TTI)	SE (%)
Rats	5	3
Mice	22	10

## 3. Small mammal monitoring results (NB: for February only)

Small mammal monitoring	
Date of monitor: 17 February 2016	
Mustelids – % of tunnels tracked:	0
Hedgehogs – % of tunnels tracked:	13

## 4. Analysis and comments

Rats remain at low levels in Korokoro Valley, while mice numbers continue to fall (a major drop from 52% in November to 22% in February). Mouse tracking is low around the country, a phenomenon that is thought to have resulted from the rodent crash following the mast year eruption in rodent numbers.

During the rodent monitor, a cat was detected in one tunnel and hedgehog prints were found in two tunnels.

Hedgehogs were detected on Lines 3, 4 and 5 during the small mammal monitor. One tunnel on Line 6 was tracked by rats. Hedgehogs were recorded at high levels in the valley from 2011 to 2014, with a mean tracking rate of 40%. This latest tracking rate of 13% is more in comparable to the levels recorded in other forests.

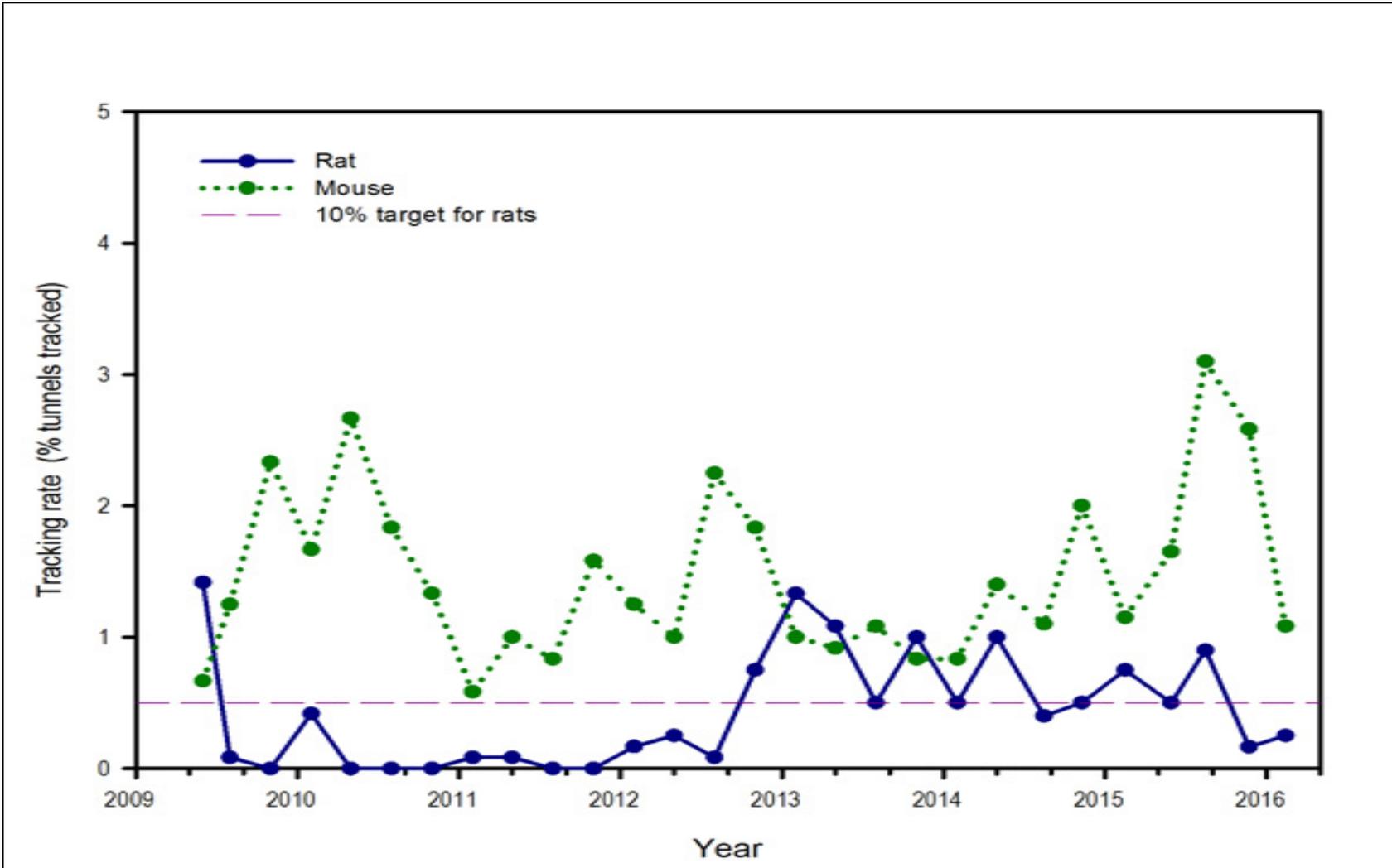


Figure 11: Rat and mouse tracking rates in Belmont Korokoro KNE site

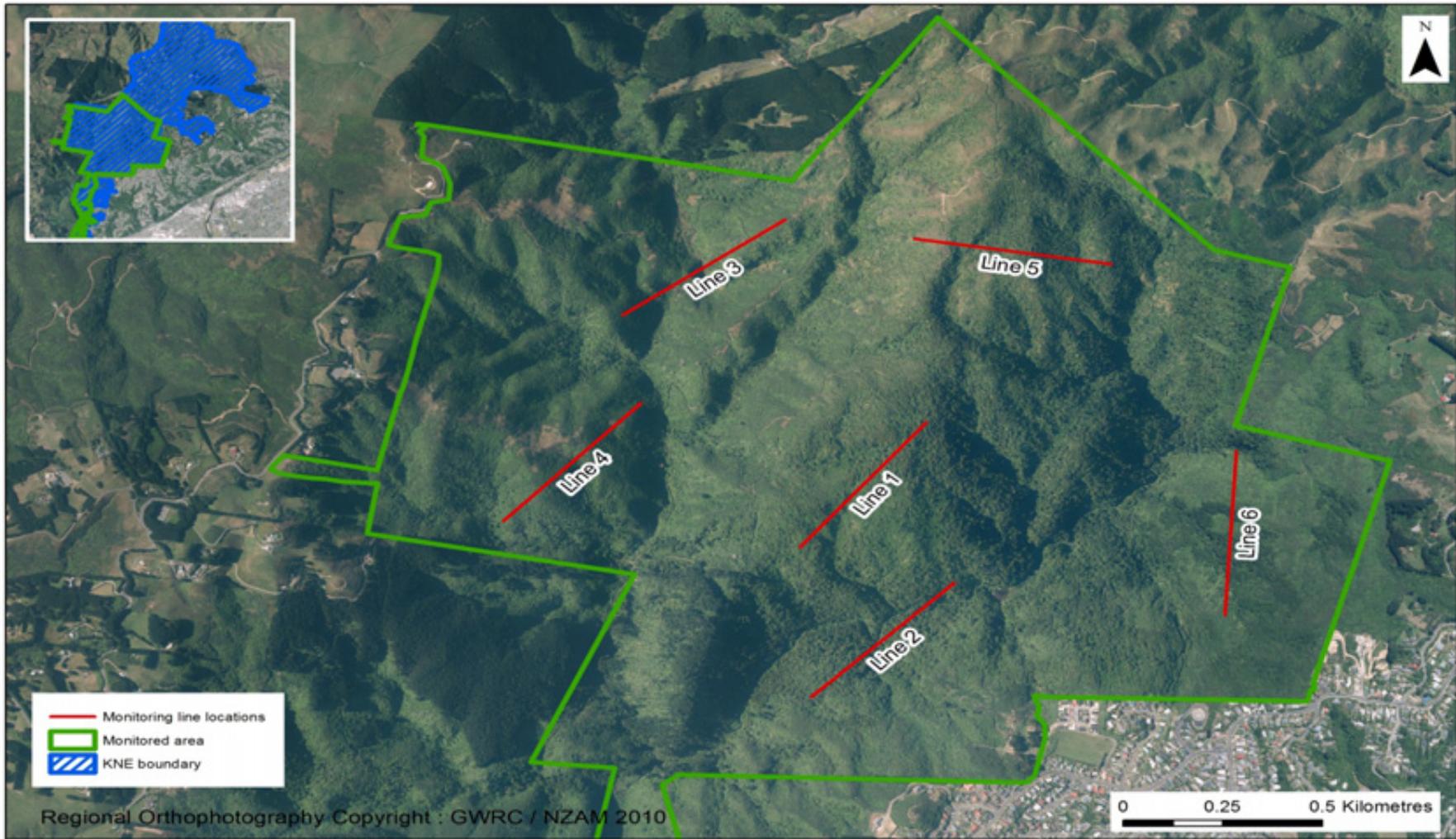


Figure 12: Map of Belmont Korokoro KNE site showing the location of the tracking tunnel lines

# Queen Elizabeth Park

<b>KNE area:</b>	<b>161 ha</b>
<b>Area monitored:</b>	<b>146 ha</b>
<b>Vegetation type:</b>	Coastal dune scrub and regenerating coastal broadleaf forest
<b>Surrounding landscape:</b>	Farmland, coastline and urban residential

## 1. Pest animal control regime

The information in this section has been supplied by the Biodiversity and Biosecurity Departments.

### Current pest animal control regime:

A low level of possum control is carried out using 14 Timms traps. Mustelids are controlled throughout the KNE site using 60 DOC200 traps spaced at about 200 m intervals. A volunteer services all traps every two to three weeks.

### Pest animal control background:

Mustelid trapping started in 2008 with 45 DOC200 kill-traps being installed. A further 115 DOC200 traps and 14 Timms traps for possums were added between 2008 and 2012.

### Surrounding pest control regimes:

Possums are controlled on adjacent farmland using widely spaced bait stations

## 2. Rodent monitoring results

Rodent monitoring	
Date of monitor: 8 February 2016	
Species	Tracking rate (%TTI)
Rats	0
Mice	25

## 3. Analysis and comments

Rat tracking remains at low at this site. Line A had most of the tracking recorded during this monitor with 40% mouse tracking, four hedgehogs and a cat detected. Line B had one tunnel tracked by mice (10%) and a skink was detected.

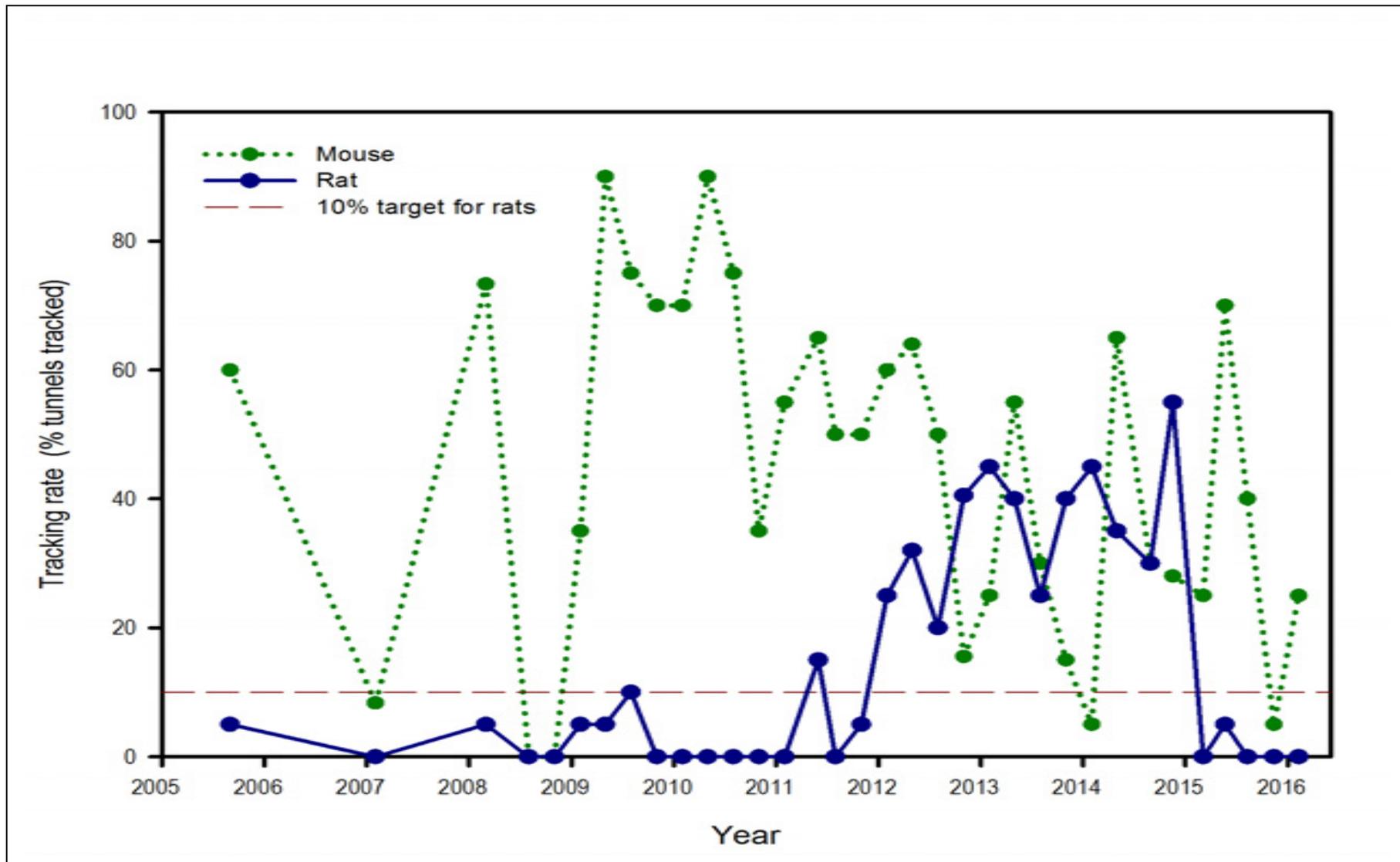


Figure 13: Rat and mouse tracking rates in Queen Elizabeth Park KNE site



Figure 14: Queen Elizabeth Park KNE site showing the location of the tracking tunnel lines



# Wi Tako Ngātata

<b>KNE area:</b>	<b>153 ha</b>
<b>Area monitored:</b>	<b>145 ha</b>
<b>Vegetation type:</b>	Beech forest, kanuka and regenerating broadleaf forest
<b>Surrounding landscape:</b>	Urban and peri-urban residential, regenerating native forest blocks and pine stands

## 1. Pest control regime

The information in this section has been supplied by the Biodiversity and Biosecurity Departments.

### Current pest animal control regime:

Possum and Rodent control is undertaken with 47 Pelifeed bait stations using brodifacoum poison bait on a 150 m x 150 m grid in Ecclesfield Reserve and on Department of Corrections land. The network is serviced by volunteers four times a year at intervals of three months.

Mustelid control using 19 DOC 200 kill-traps is undertaken along main track network. This is serviced by volunteers four times year at intervals of three months.

### Pest animal control background:

The bait station network was installed in Ecclesfield Reserve and on Department of Correction's land of the KNE site in 2001. Initially bait containing feracol cholecalciferol and brodifacoum were used, but since 2003 only brodifacoum has been used. Bait stations were originally serviced twice a year by volunteers. Since 2014 the network is serviced four times a year. Mustelid control began in 2015.

### Surrounding pest control regimes:

There is no other control in the immediate surroundings of the KNE site.

## 2. Rodent monitoring results

Rodent monitoring	
Date of monitor: 13 February 2016	
Species	Tracking rate (%TTI)
Rats	0
Mice	0

### **3. Analysis and comments**

The rat-tracking result of zero for rodents could be related to the baiting regime, but may also be part of the wider phenomenon of fewer rodents being recorded due to the rat population crash following the end of the mast year food supply.

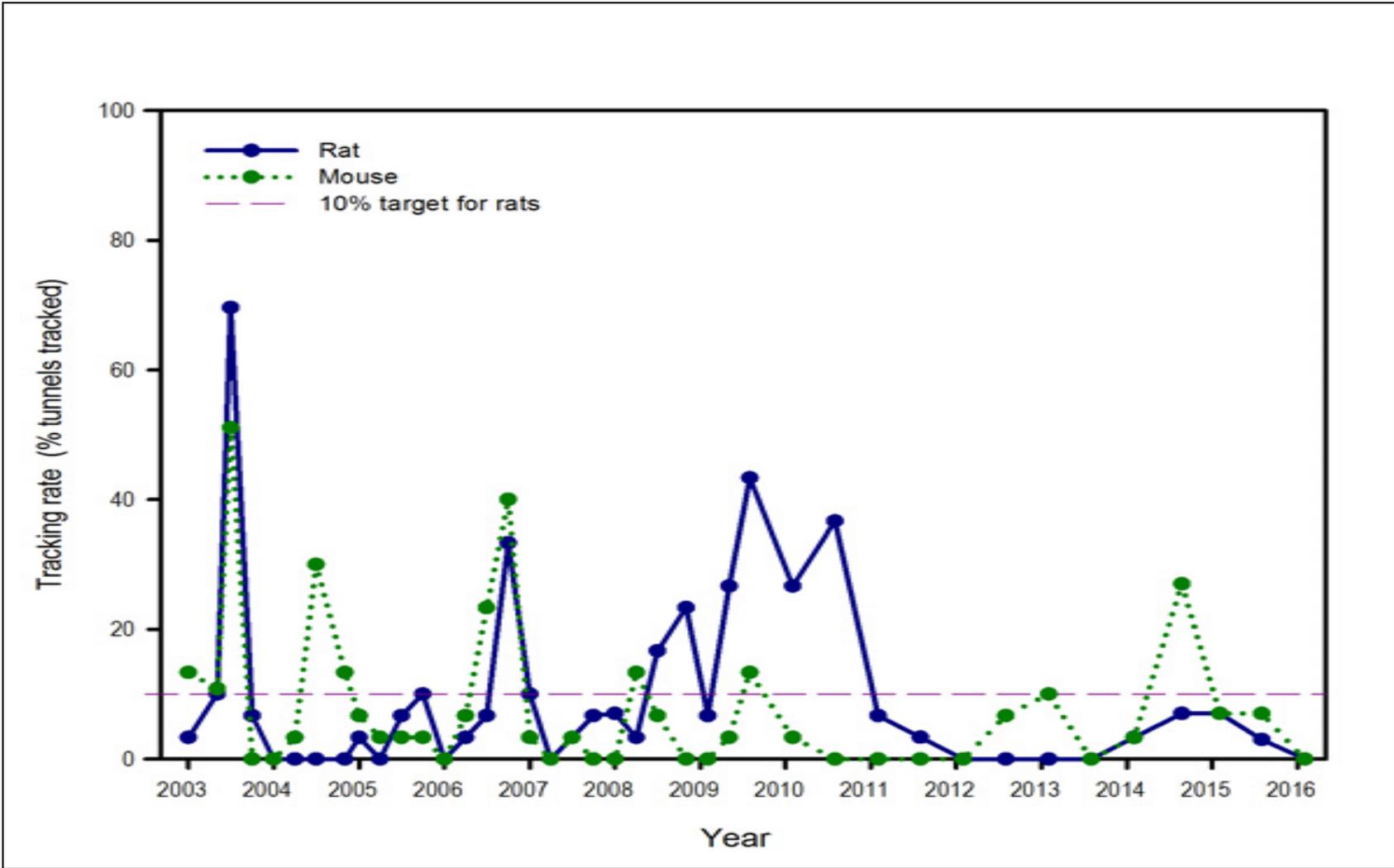


Figure 15: Rat and mouse tracking rates in Wi Tako Ngātata KNE site

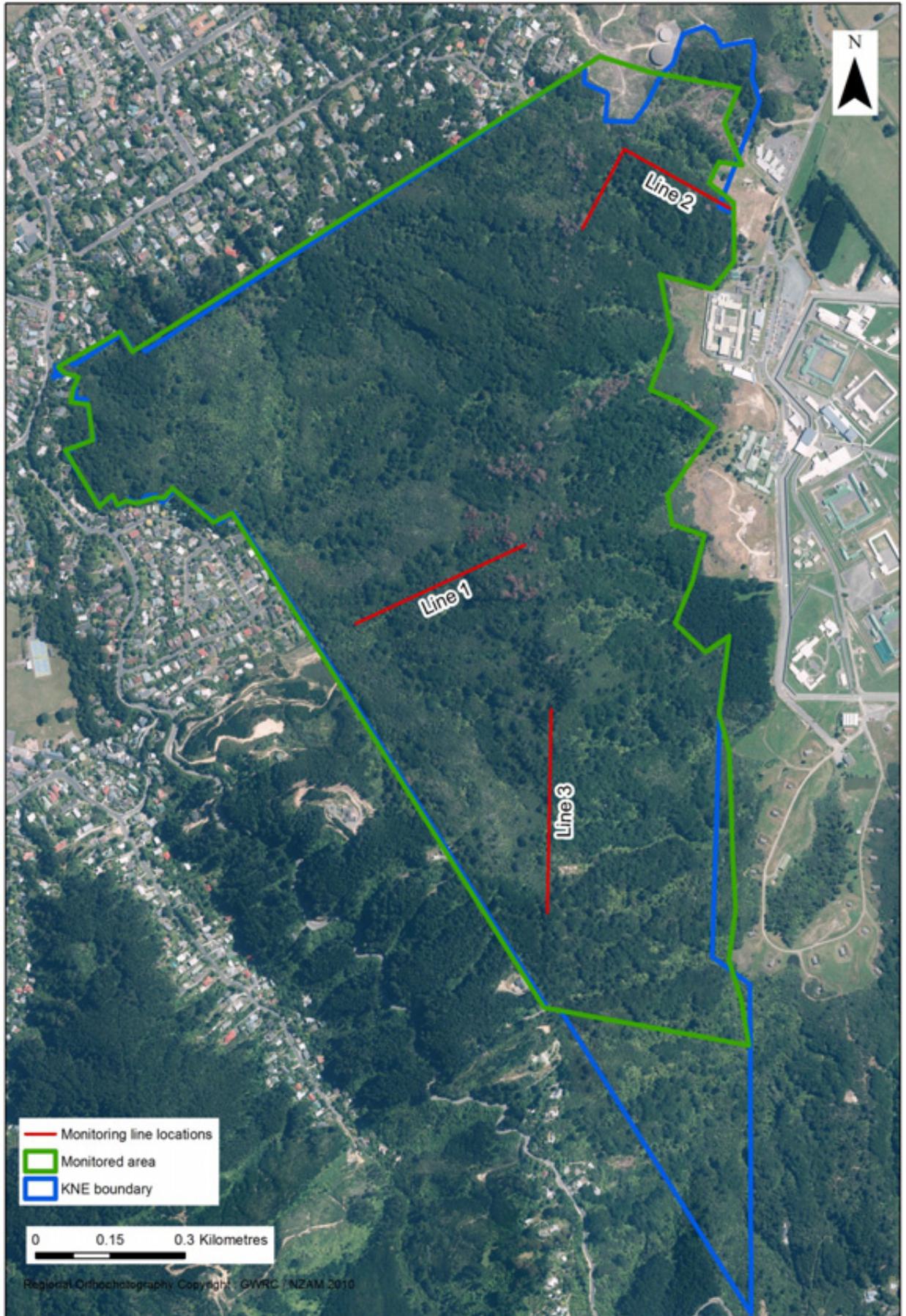


Figure 16: Wi Tako Ngātata KNE site showing the location of the tracking tunnel lines

## Wellington Western Forests (Otari/Wilton's Bush)

<b>KNE area:</b>	714 ha
<b>Area monitored:</b>	85 ha
<b>Vegetation type:</b>	Regenerating broadleaved and podocarp forest
<b>Surrounding landscape:</b>	Urban/residential and exotic dominated vegetated hills

### 1. Pest animal control regime

The information in this section has been supplied by the Biodiversity and Biosecurity Departments.

#### **Current pest animal control regime:**

Possum and Rodent control is undertaken with 82 Pelifeed bait stations using brodifacoum poison bait on a 150 m x 150 m grid. The network is serviced four times a year at intervals of three months by Biosecurity staff.

Mustelid control using 44 DOC 200 kill-traps is undertaken on off main walking tracks. Volunteers service this four times a year at three monthly intervals.

#### **Pest animal control background:**

Cyanide paste and baits containing brodifacoum were initially used in 1993. The bait station network was installed in 1997 on a 150 m x 150 m grid using brodifacoum cereal pellets. Biosecurity staff serviced the network four times a year. The DOC200 kill-traps were installed in 2007 and are serviced by volunteers.

#### **Surrounding pest control regimes:**

Timms traps targeting re-invading possums on skyline track. Bait stations and DOC 200 kill-traps in neighbouring Chartwell/Johnston Hill reserve areas contiguous with Otari regime. The Regional Possum Predator Control Programme is operating to the west of the KNE site.

### 2. Rodent monitoring results

Rodent monitoring	
Date of monitor: 22 February 2016	
Species	Tracking rate (%TTI)
Rats	5
Mice	7

### 3. Small animal monitoring results

Small mammal monitoring	
Date of monitor: 26 February 2016	
Mustelids – % of tunnels tracked:	0%
Hedgehogs – % of tunnels tracked:	10%

### 4. Analysis and comments

The rat-tracking rate remains below the 10% target level as has been the case since 2010. The mouse tracking rate is also low, which may be due to the phenomenon of the rodent population crash following the mast year population eruption.

A cat was detected in one tunnel near residential properties during the rodent monitor.

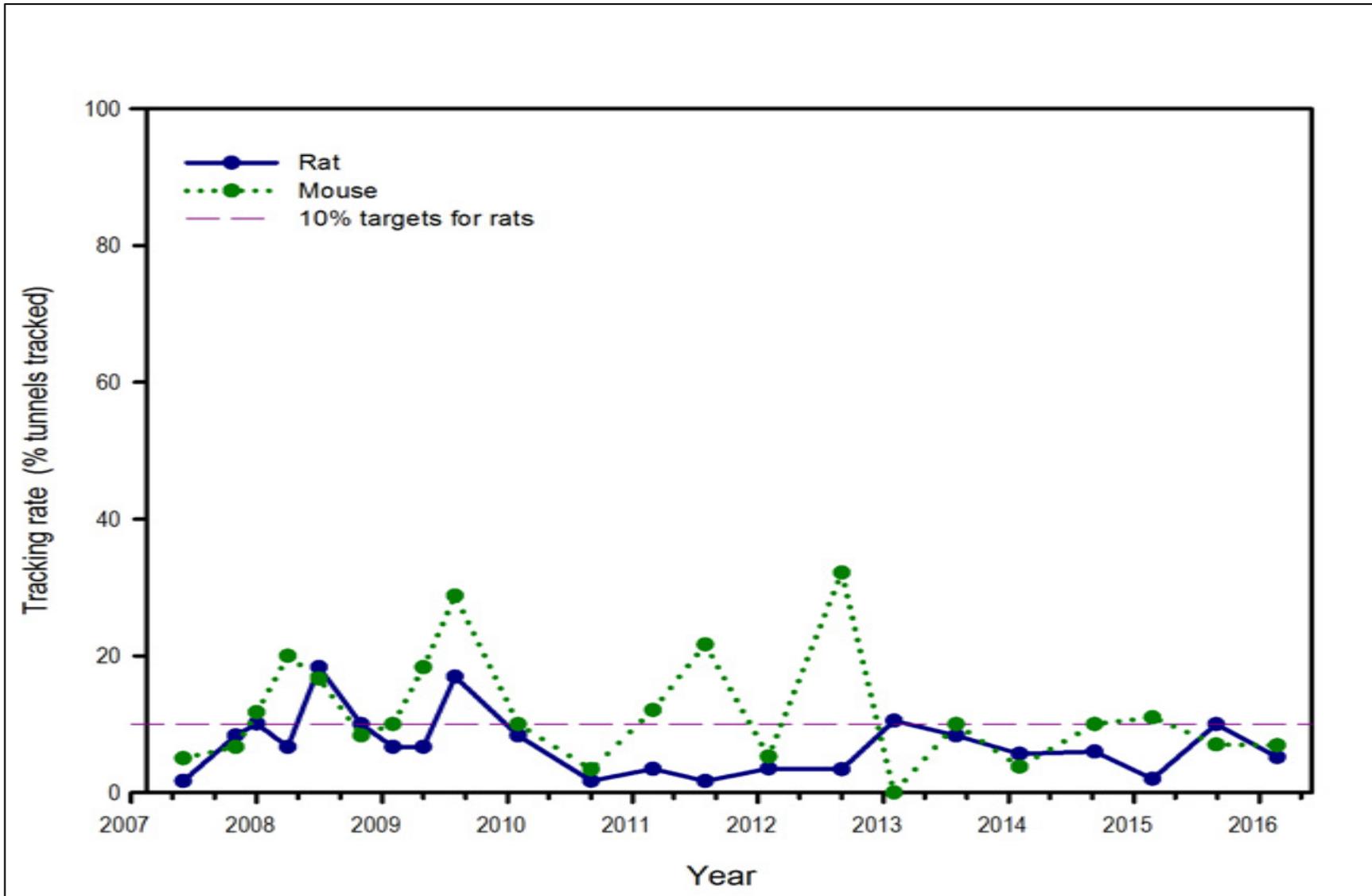


Figure 17: Rat and mouse tracking rates in Wellington Western Forests KNE site (Otari/Wilton's Bush)



Figure 18: Map of Wellington Western Forests KNE site (Otari/Wilton's Bush) showing the location of the tracking tunnel lines

# Western Wellington Forests (Johnsonville Park)

KNE area:	714 ha
Area monitored:	118 ha

## 1. Pest animal control regime

The information in this section has been supplied by the Biodiversity and Biosecurity Departments.

### Rodent and Possum control:

Bait stations were installed in 1998 on a 150 m x 150 m grid and are serviced four times a year. Baits containing brodifacoum, feratox and cholecalciferol were initially used, but between 2003 and 2010, Brodifacoum cereal pellets were used.

This site is now a trial site and is used to test the efficacy of new pest control techniques. Between 2010 and 2012 Diphacinone pellet and pindone pellet baits were trialled and since 2012 A24 Good Nature gas operated rat traps have been trialled using trap spacing greater than the manufacturer's recommendation

## 2. Rodent monitoring results

Rodent monitoring	
Date of monitor: 19 February 2016	
Species	Tracking rate (%TTI)
Rats	15
Mice	30

## 3. Analysis and comments

The rat-tracking rate has dropped substantially from 50% reported in August 2015. This is the only site where the rat-tracking rate has exceeded the 10% management target but levels have fallen since the last monitor. This drop may have resulted from a change in approach to the use of the Good Nature gas traps, with Biosecurity having applied a pre-bait (of chocolate paste) in the surrounding bush one month prior to the monitor. It would be good to assess this trend over a longer time period however, as it could also be due to the general decline in rodent numbers regionally. The mouse-tracking rate increased from 20% recorded at the last monitor in August.

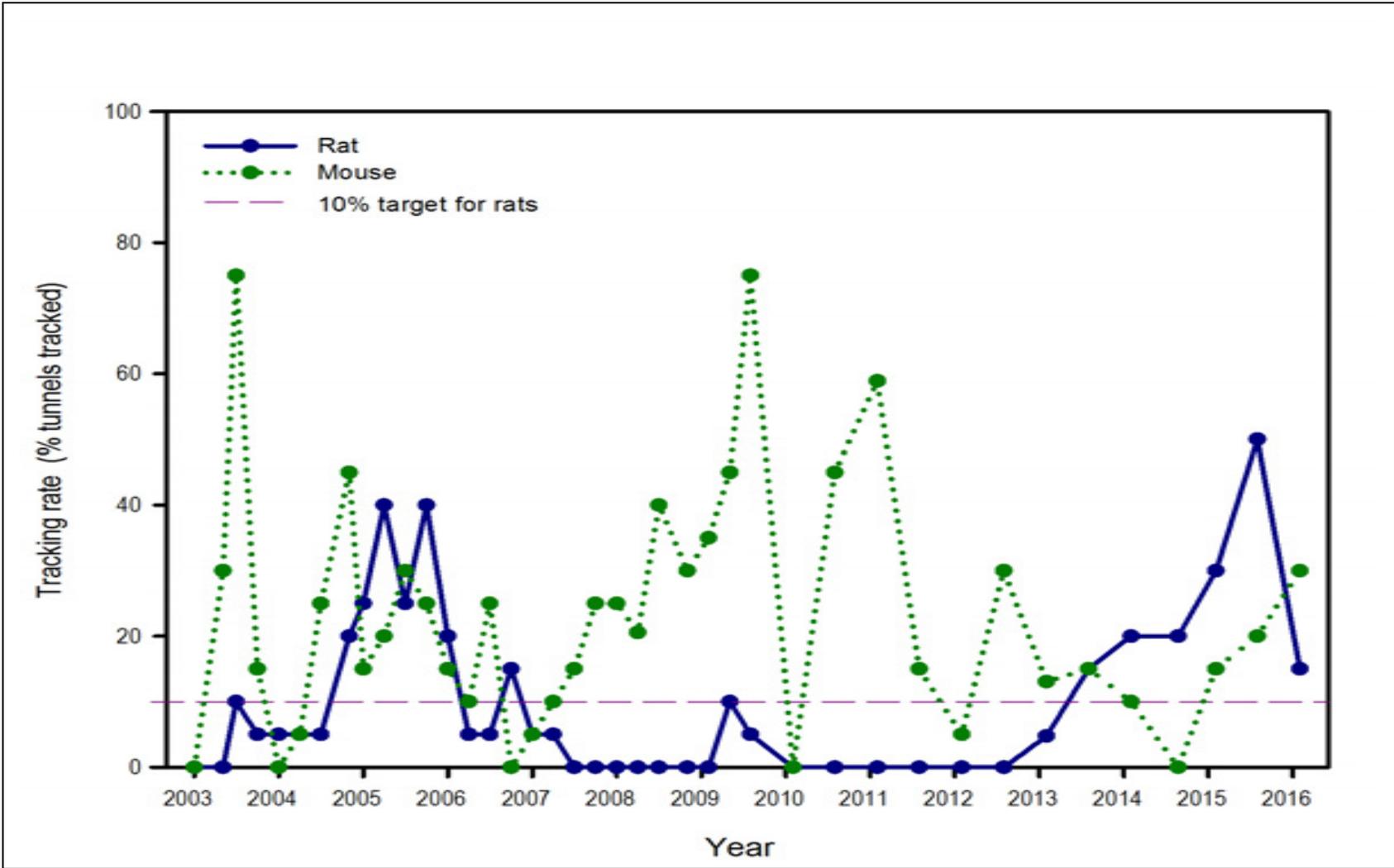


Figure 19: Rat and mouse tracking rates in Wellington Western Forests KNE site (Johnsonville Park)



Figure 20: Map of Wellington Western Forests KNE site (Johnsonville Park) showing the location of the tracking tunnel lines



## Porirua Western Forests

<b>KNE area:</b>	<b>315 ha</b>
<b>Area monitored:</b>	<b>360 ha</b>
<b>Vegetation type:</b>	Semicoastal kohekohe/tawa forest
<b>Surrounding landscape:</b>	Farmland, urban, exotic vegetated hills

### 1. Pest animal control regime

The information in this section has been supplied by the Biodiversity and Biosecurity Departments.

#### **Current pest animal control regime:**

Possum and Rodent control is undertaken with 216 Pelifeed bait stations using brodifacoum poison bait on a 150 m x 150 m grid. The network is serviced four times a year at intervals of three months by Biosecurity staff. The area is currently undertaking a bait trial using only one cap of brodifacoum poison (170 gms) in all bait stations regardless of bait take.

Mustelid control using 31 DOC 200 kill-traps is undertaken on an approximate 300-400 m grid. This is serviced by Biosecurity staff four times a year at intervals of three month when the bait stations are being serviced.

#### **Pest animal control background:**

The bait station network was installed in 1996. Baits containing brodifacoum, feratox and cholecalciferol were initially used, but since 2003 brodifacoum and small amounts of pindone have mainly been used. Mustelid control began in in 2003 using SAF predator traps that were replaced by DOC200 traps in 2008.

#### **Surrounding pest control regimes:**

Bait stations, predator traps and possum traps in Pikarere Farm, bait stations at Stuart Park and Whitireia Park (which is possum free). The Regional Possum Predator Control programme is controlling possums in the Ohariu area and DOC have a network of baitstations at Colonial Knob.

### 2. Rodent monitoring results

Rodent monitoring	
Date of monitor: 2 February 2016	
Species	Tracking rate (%TTI)
Rats	0
Mice	3

### **3. Analysis and comments**

The rat-tracking index has dropped from 7% reported in the August monitor and remains below the 10% management target. Mice levels are also low at this site.

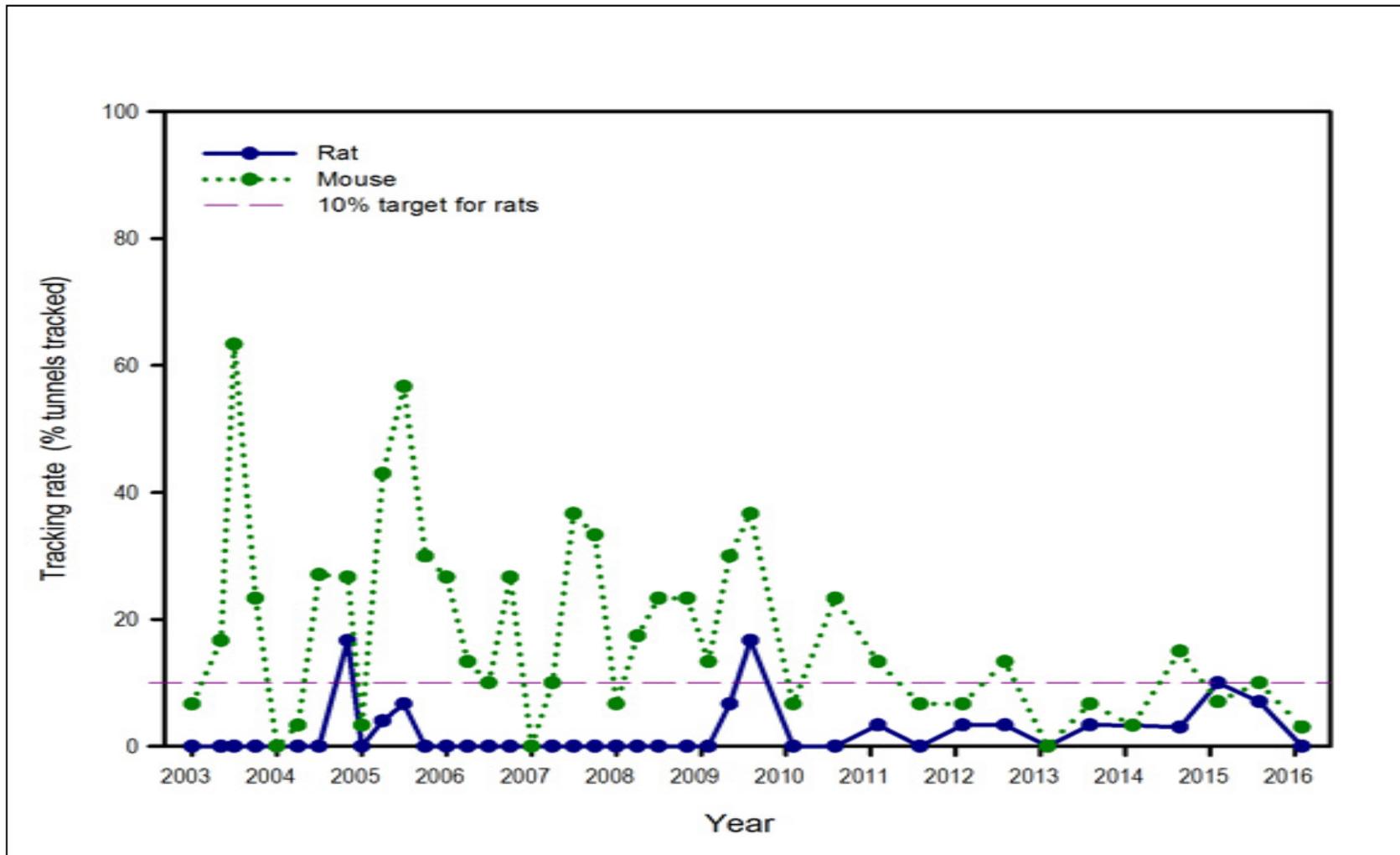


Figure 21: Rat and mouse tracking rates in Porirua Western Forests KNE site



Figure 22: Map of Porirua Western Forests KNE site showing the location of the tracking tunnel lines



The Greater Wellington Regional Council's purpose is to enrich life in the Wellington Region by building resilient, connected and prosperous communities, protecting and enhancing our natural assets, and inspiring pride in what makes us unique

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