



# Possum monitoring report for Key Native Ecosystem sites 2015/16

Western Wellington Forests and  
Porirua Western Forests



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Te Pane Matua Taiao



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1 July 2016

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The report may be cited as:

Moylan S. March 2016. *Possum monitoring report for Key Native Ecosystem sites*. Greater Wellington Regional Council, Unpublished internal report, Wellington.

## 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 possums. Control of possums is undertaken at many KNE sites throughout the region, and in order to ensure that control is effective monitoring is undertaken at selected sites.

The purpose of this monitoring is to:

- Report on the effectiveness of possum control regimes in forest ecosystems
- Trigger a change in the baiting regime for ground based operations
- Provide a trigger for 1080 possum control operations

## Monitoring sites

Residual Trap Catch monitoring (RTC) or Wax Tag monitoring is programmed for the KNE sites listed in Table 1. Monitoring site boundaries reflect the Biosecurity Department’s multi-species pest management areas and do not necessarily reflect the KNE site boundaries which have changed over time.

**Table 1: Possum monitoring schedule for the KNE programme.**

<b>KNE site</b>	<b>Possum monitoring methodology</b>	<b>Monitoring year</b>
Western Wellington Forests (Otari)	Wax tags	2015/16
Porirua Western Forests	Wax tags	2015/16
Wainuiomata/Orongorongo (Mainland Island)	Residual trap catch	2016/17
East Harbour Northern Forest	Residual trap catch	2017/18
Akatarawa Forest	Wax tags	2017/18
Belmont Korokoro	Wax tags	2018/19
Kaitoke Regional Park	Residual trap catch	2019/20

## Methods and targets

Possum monitoring follows protocols detailed in National Pest Control Agencies Possum Population Monitoring (NPCA 2010 A2<sup>1</sup>). A new protocol was developed in late 2015, but previous possum monitoring operations have followed the previous versions of the protocol. The data obtained from the monitoring lines represents a relative abundance index, not a measure of actual possum abundance (possums/hectare).

The Residual Trap Catch Index (RTCI) is the longest established possum index, while the Wax Tag Index (BMI) has been used more frequently over the past 10 years. The same methodology should be used before and after pest control operations in order to be able to make a direct comparison of the relative abundance change. Wax tags are now being used for population trend analysis in urban reserves where bylaws prohibit the use of traps or where there is a risk to domestic pets. They have also now been deployed at some forest sites to save costs.

The correlation of BMI (using Wax tags) and RTC indices is not direct, but the latest NPCA protocol<sup>2</sup> indicates that the relative accuracy appears acceptable, with  $r^2 = 0.9$  in one study (Thomas and Meenken 2010)<sup>3</sup>. Previous studies found that wax tags were more sensitive than RTC at low population levels and less sensitive at high population levels as devices become ‘saturated’ quickly. Saturation means that most of the wax tags are marked at a much lower level of population density than is required to have the same level of traps catching possum. However, a 5% BMI is similar to an RTC of 5% with regard to relative abundance of possum populations, i.e. a 1:1 ratio can be inferred.

The target possum index for all sites is 5% RTCI or 5% BMI.

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1 NPCA, 2010. A2 *Possum Population Monitoring Using the Wax Tag Method* (discontinued). National Pest Control Agencies, <http://www.npca.org.nz/index.php/a-series-best-practice>

2 NPCA, 2015. A1 *Possum Population Monitoring Using the Trap Catch, Wax Tag, and Chew Card Methods*. National Pest Control Agencies, <http://www.npca.org.nz/index.php/a-series-best-practice>. ISBN: 978-1-877474-57-6

3 Thomas M and Meenken D, 2010. *Effects of pre-feeding on ground and leaning-board trap sets and the relationship between wax tag and trap-catch possum monitoring indices*. Pest Control Research Contract Report 2010/1, prepared for the Animal Health Board.

## Western Wellington Forests – Otari/Wilton’s Bush

**KNE area:** 714 hectares

**Area monitored:** 85 hectares

**Vegetation type:** Regenerating broadleaved and podocarp forest

**Surrounding landscape:** Urban/residential and exotic dominated vegetated hills

### 1. Pest animal control regime

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

Possum and Rodent control is undertaken with 82 Pelifeed bait stations using brodifacoum poison bait on a 150m x 150m 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 150m x 150m grid using brodifacoum cereal pellets. Biosecurity staff serviced the network four times a year. The DOC 200 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.

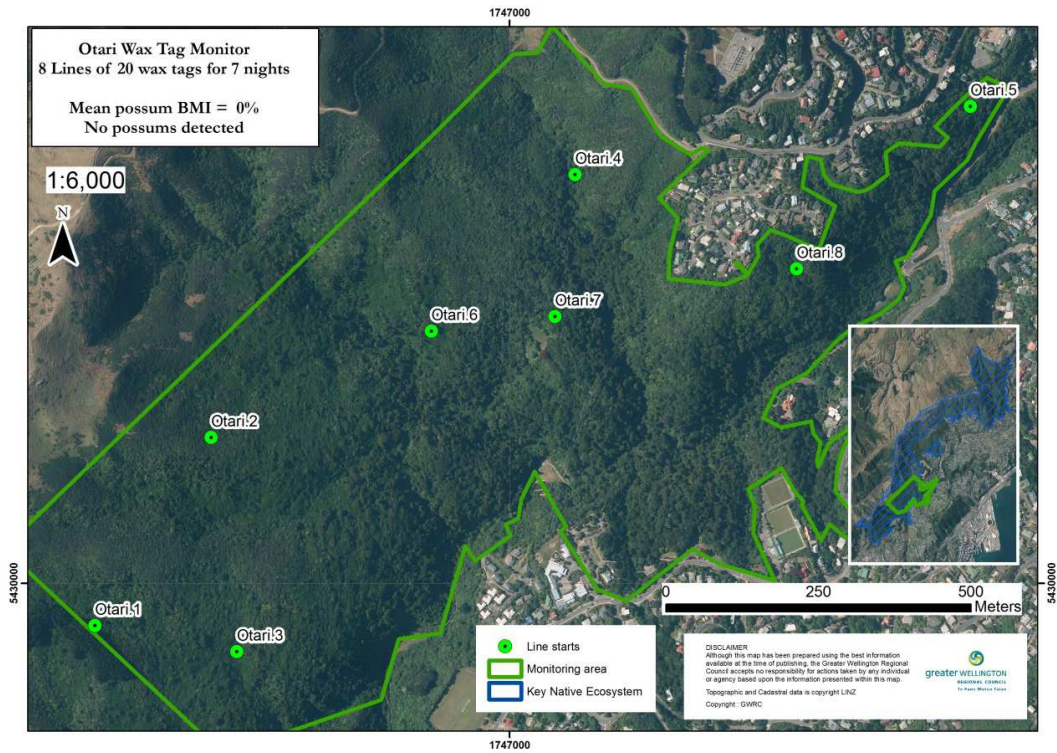
### 2. Monitoring History

Formal monitoring of Otari-Wilton’s bush, now part of Western Wellington Forests KNE site, began during December 1995 following the first possum control operation undertaken in this area. A pre-operation monitor was not undertaken, but an assumption was made that the possum levels were around 27% Residual Trap Catch (RTC), based on a weighted average pre-operational RTC for the Wellington Region.

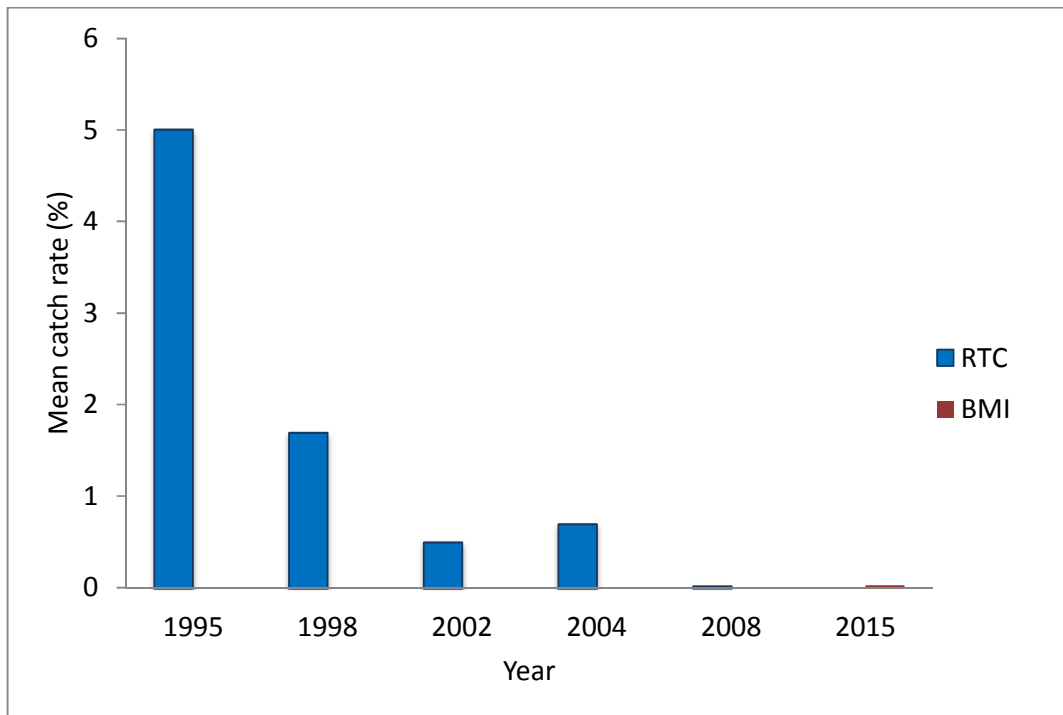
The RTC methodology was used for subsequent monitors, but wax tags were used this time as it has become more difficult in recent years to use traps in public reserves.

### 3. Results

There were no possums detected on any of the 8 lines, resulting in a wax tag bite mark index of 0%, as shown in Figure 1.



**Figure 1: Location of wax tag lines in Western Wellington Forests (Otari Bush) KNE site**



**Figure 2: Possum monitoring results for Otari Bush, part of Western Wellington Forests KNE site.**

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

This monitor shows that possum numbers are well below the 5% target, and that pest control techniques employed in the reserve are successfully maintaining low possum levels.

## Porirua Western Forests

<b>KNE area:</b>	315 hectares
<b>Area monitored:</b>	328 hectares
<b>Vegetation type:</b>	Semi-coastal kohekohe/tawa forest
<b>Surrounding landscape:</b>	Farmland, urban, exotic vegetated hills

### 1. Pest animal control regime

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

Possum and Rodent control is undertaken with 216 Pelifeed bait stations using brodifacoum poison bait on a 150m x 150m grid. The network is serviced four times a year at intervals of three months by Biosecurity staff.

Mustelid control using 31 DOC 200 kill-traps is undertaken on an approximate 300-400m 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 south of the KNE.

### 2. Monitoring History

Formal monitoring of Porirua Scenic Reserve, now part of Porirua Western Forests KNE site, began during March 1996 prior to the first possum control operation undertaken in this area.

The RTC methodology was used for subsequent monitors, but wax tags were used this time as it has become more difficult in recent years to use traps in public reserves.



### 3. Results

There were no possums detected on any of the 10 lines, resulting in a wax tag bite mark index of 0%, as shown in Figure 3.

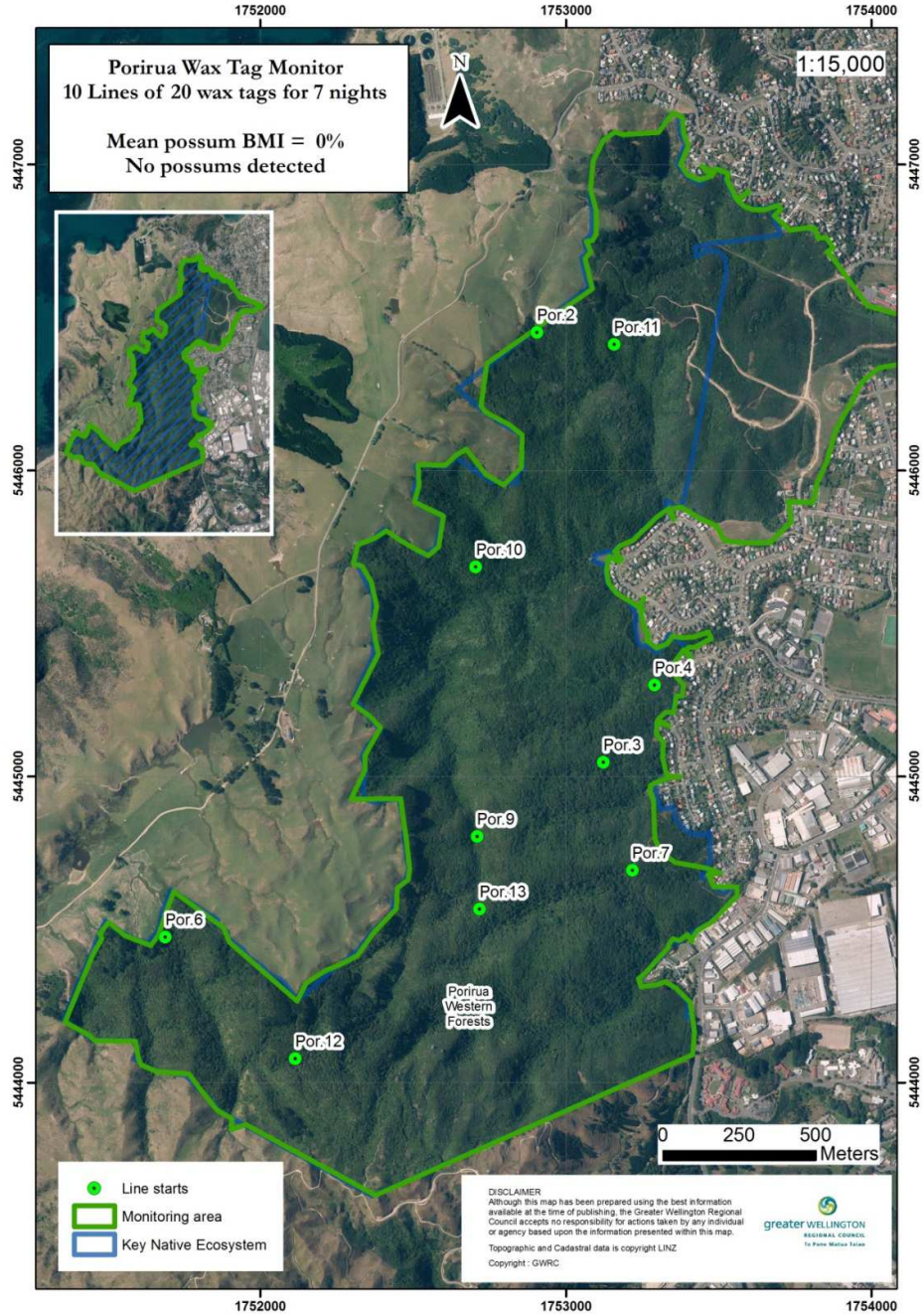
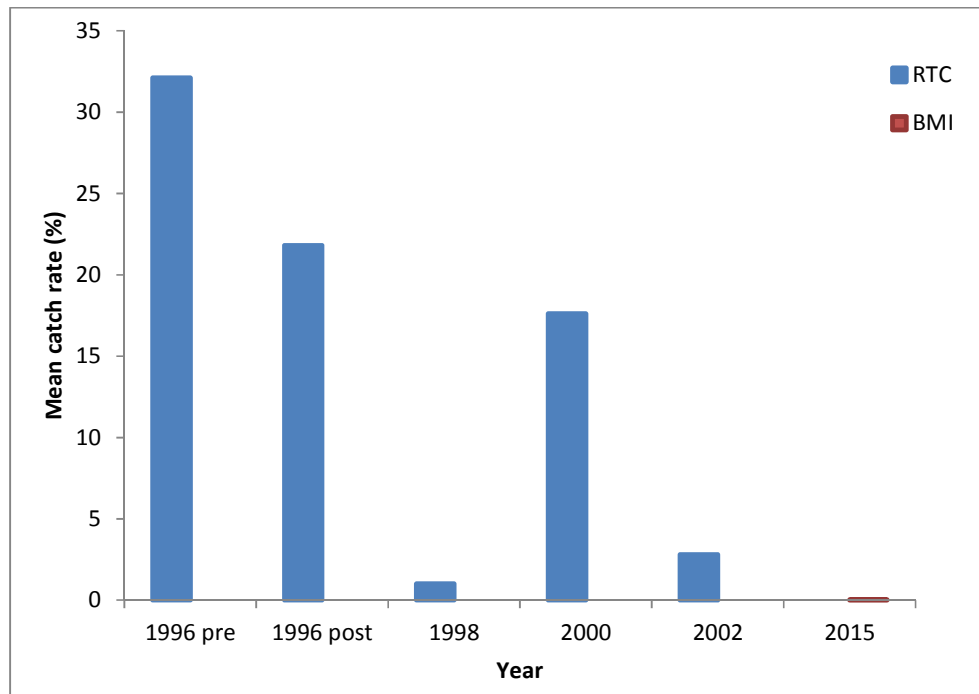


Figure 3: Location of wax tag lines in Porirua Western Forests KNE site.



**Figure 4: Possum monitoring results for Porirua Western Forests KNE site.**

**4. Analysis and comments**

This monitor shows that possum numbers are well below the 5% target, and that pest control techniques employed in the reserve are successfully maintaining low possum levels.



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