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April 2008

Rodent and Mustelid Monitoring

For Otari Wiltons Bush

October 2007 and January 2008 monitors

Absolutely POSITIVELY Wellington

Me Heke ki Pōneke
Wellington City Council

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Rodent and Mustelid Monitoring Report For Otari Wilton's Bush

OCTOBER 2007 AND JANUARY 2008 MONITOR

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Monitoring and Investigations
Greater Wellington Regional Council

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1. Summary

Rodent and mustelid monitoring is conducted in Otari-Wilton's Bush using tracking tunnels. This is a co-operative programme involving Wellington City Council (WCC), the Otari volunteer group RAMBO (Rodent and Mustelid Blitzing at Otari) and Greater Wellington Regional Council (Greater Wellington). The purpose of the monitoring programme is to measure the success of the trapping and baiting regime in maintaining low predator numbers.

Monitoring began in June-July 2007 and is performed quarterly. Initial monitoring revealed a low incidence of rats and mustelids. Given the well established anticoagulant bating prior to any monitoring taking place, low population indices are expected.

Since predator trapping commenced in July 2007, following the initial monitor in June 2007, monitoring has been repeated in October 2007 and January 2008. Results show a continued low incidence of rats (around 10% tracking rate) and mustelids (one tracking event per monitor). Compared to tracking results from other areas, the mouse population also appears to be low, at around a 10% tracking rate.

Given the low incidence of pests tracked over all available monitoring periods, and the relatively small sample size (dictated by the small size of the area), no statistically significant trends exist. However, the monitoring achieves its purpose, confirming the ongoing low incidence of rodents and mustelids.

Encouragingly, numerous weta prints were recorded, as well as one lizard.

Some other species such as possums and hedgehogs were also recorded. The monitoring programme is not designed to monitor these species therefore population trends cannot be concluded.

Figure 1 shows the rodent tracking results to date

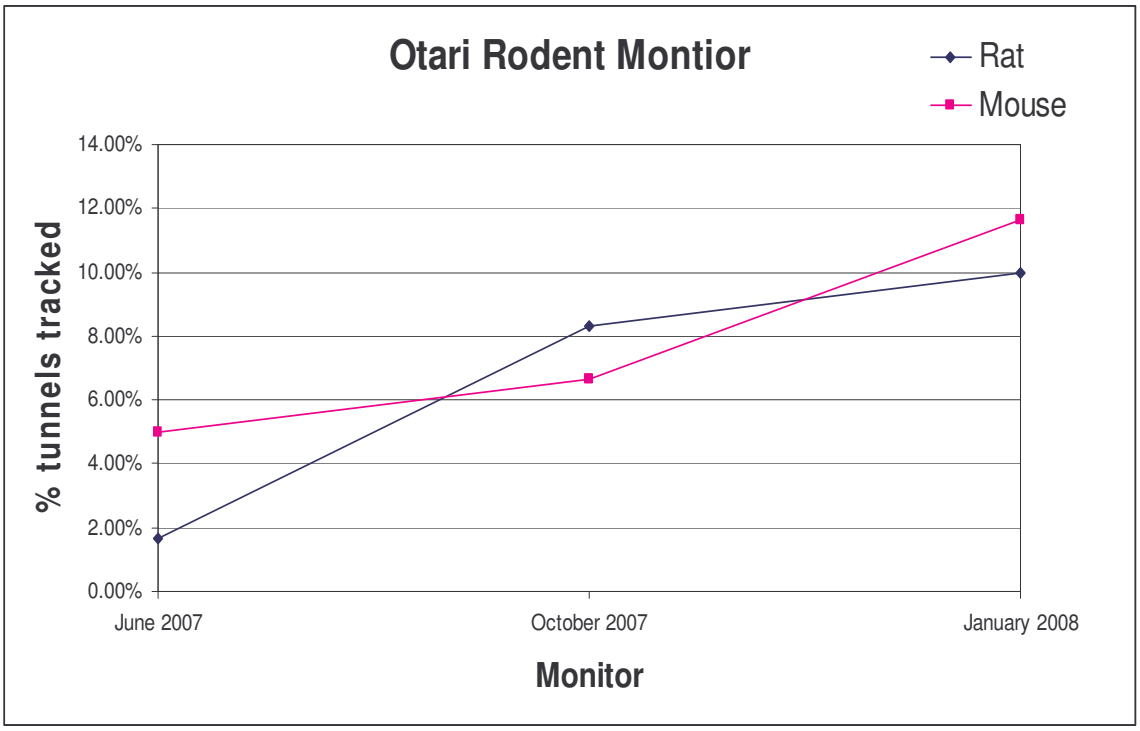
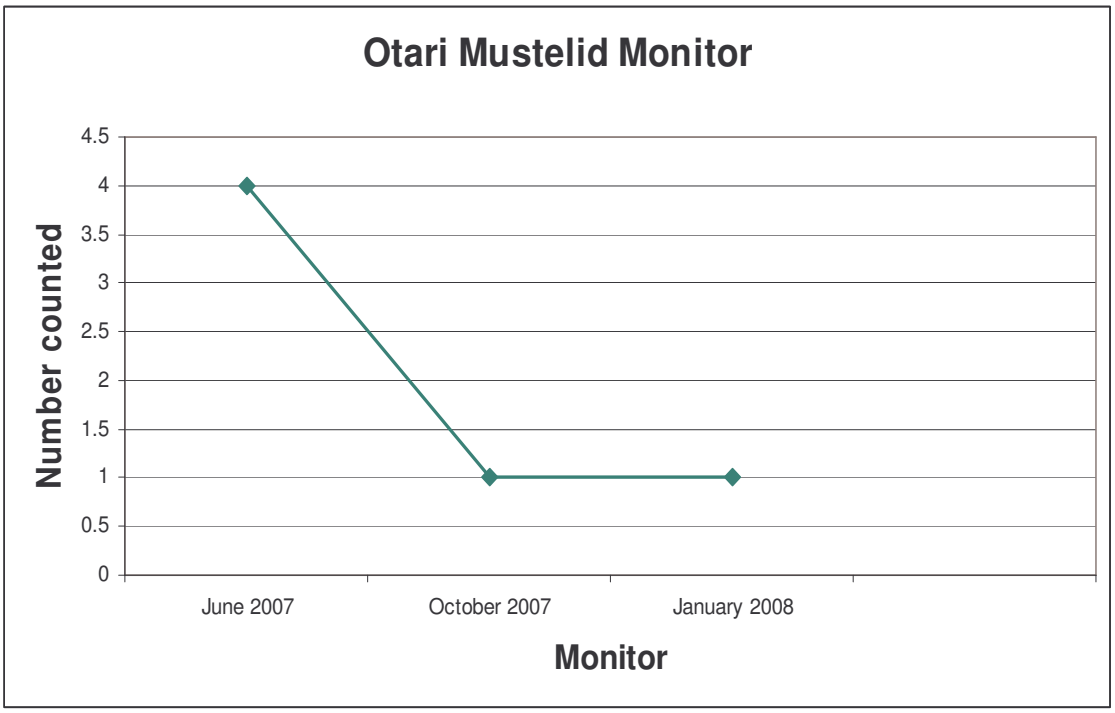


Figure 2 shows the mustelid tracking results to date



2. Monitoring methods

The October monitor was the first monitor completed since volunteers started predator trapping in July 2007

2.1 Rodent monitoring

Sixty monitoring tunnels are permanently located along existing possum bait lines, and near individual bait stations, achieving a non-random but relatively even coverage of the entire reserve.

Monitoring tunnels are spaced approximately 100-150m apart (map 1). Each rodent station is treated as an independent sample unit. Monitoring is completed in one fine night and tunnels are baited with peanut butter.

2.2 Mustelid monitoring

Immediately following rodent monitoring, mustelid monitoring is completed over three fine nights. Tunnels are baited with salted or fresh rabbit meat.

Mustelid monitoring uses a subset of the rodent monitoring tunnels, three lines of five to nine tunnels each (map 1). It is possible for one mustelid to track several tunnels as mustelids have large home ranges, and the tunnels are closely spaced. The tunnels on each line are therefore not independent and each line is treated as one sample unit, giving an effective sample size of three. The small sample size, restricted due to the small site size, does not allow reporting of percentage tracking rates nor any statistics. However, importantly the monitoring does give an indication of the incidence of mustelids and is sensitive enough to track mustelids within the entire operational area.

3. October 2007 monitoring results

Table one – rodent monitoring results summary

Species	Number of tunnels tracked	Tracking Rate	Tunnel no's tracked	Notes on Tunnel location and surrounding habitat
Rat	5	8.3% +/- 8% 95% CI	28, 34, 38, 39, 51	Four of the rats tracked were at the southern end of the reserve and three of these were near a stream.
Mouse	4	6.7% +/- 7% 95% CI	10, 35, 45, 46	All the mice tracked were near the edge of the reserve, and most were near houses or buildings.
Hedgehog	4	6.7% +/- 7% 95% CI	44, 53, 56, 57	All the hedgehogs were tracked around the edge of the reserve.
Mustelid	Nil	N/A	N/A	
Other	Two tunnels had marks from possum reaching in and pulling out the bait There were 2 tunnels with invertebrate tracks, mostly weta			

Table two – mustelid monitoring results summary

Species	Number of tunnels tracked	Tracking Rate	Tunnel no's tracked	Notes on Tunnel location and surrounding habitat
Mustelid	1	1 tunnel on 1 line tracked	48	The single mustelid detected was at the north end not far from residential properties.
Other	Rodents: 2 rats and 2 mice were tracked There were no hedgehogs or possums detected One **cat** was detected at the very top northern corner of the reserve There were 4 tunnels with invertebrate tracks, mostly weta			

4. January 2008 monitoring results

Table three – rodent monitoring results summary

Species	Number of tunnels tracked	Tracking Rate	Tunnel no's tracked	Notes on Tunnel location and surrounding habitat
Rat	6	10% +/- 8% 95% CI	19, 28, 38, 39, 40, 52	Rats were tracked on four tunnels at the southern end of the reserve, one tunnel was tracked in the middle of the reserve and the last one was near the northern end.
Mouse	7	11.7% +/- 9% 95% CI	9, 10, 14, 21, 23, 35, 48	Three tunnels tracked with mice are in the middle of the reserve the others are around the periphery.
Hedgehog	2	3.3% +/- 6% 95% CI	53, 54	Both tunnels with hedgehog tracks were on the eastern boundary near residential properties.
Possum	3	5% +/- 7% 95% CI	3, 5, 29	Three tunnels tracked possums, one tunnel near the middle of the reserve, and two tunnels near the northern end of the reserve.
Other	There were 21 tunnels with invertebrate tracks, mostly weta One tunnel had **lizard** tracks. This tunnel was at the top of the reserve.			

Table four – mustelid monitoring results summary

Species	Number of tunnels tracked	Tracking Rate	Tunnel no's tracked	Notes on Tunnel location and surrounding habitat
Mustelid	1	1 tunnel on 1 line tracked	36	The single mustelid detected was at the south end of the reserve near the top of the reserve but well within the bush.
Other	Rodents: 2 rats and 8 mice were tracked There were no hedgehogs or possums detected There were 19 tunnels with invertebrate tracks, mostly weta			

5. Protocol variation

During the October 2007 rodent monitor tunnels J1, K2 and L3 were inadvertently missed, however they were captured when the mustelid monitor was done. These cards were not collected until the mustelid monitor cards were collected so were exposed for three nights rather than the standard one. Any effects on the monitor results were minimal, particularly as these tunnels detected no rats or mice. Two of these tunnels recorded possum interference that may not have happened if they were only open for one night. The rodent monitor results include this data.

An extra tunnel was baited and monitored during the October 2007 mustelid monitor. Tunnel number 2 is not part of the mustelid monitor but was mistakenly included in this monitor. This tunnel has been included in the results but did not have rodent, hedgehog or mustelid tracks. Instead, the tunnel detected a cat.

An extra tunnel was baited and monitored during the January 2008 mustelid monitor. Tunnel number 41 was not part of the original monitor design but may be included in future monitors. This tunnel tracked only mice.

6. Discussion

Overall, rodent numbers remain relatively low and the tracking tunnel indices obtained are similar to other rodent monitoring results from other reserves receiving possum/ rodent control. Mustelids remain present at low numbers.

From October 2007 to February 2008 the baiting programme was interrupted for a period of 17 weeks during the transition from BioWorks to Strategy Animals undertaking the service delivery. This may have had an effect on rodent numbers but the extent of the effect is impossible to distinguish from other factors such as seasonal variation.

No possums were detected in June 2007, two in October 2007 and three in January 2008, although not statistically significant, this may indicate a slight increase in the number of possums due to the delay in filling bait stations. The number of hedgehogs' remains low.

Monitoring at Otari has detected an interesting assemblage of other species. A cat was tracked in October 2007, the first cat tracks recorded by Greater Wellington anywhere in the region.

A lizard was detected in January 2008; again, the first Greater Wellington has recorded in the region.

The numbers of invertebrates tracked fluctuates considerably, typical of seasonal fluctuations of invertebrate populations.

7. Supply of monitoring data - Terms and Conditions

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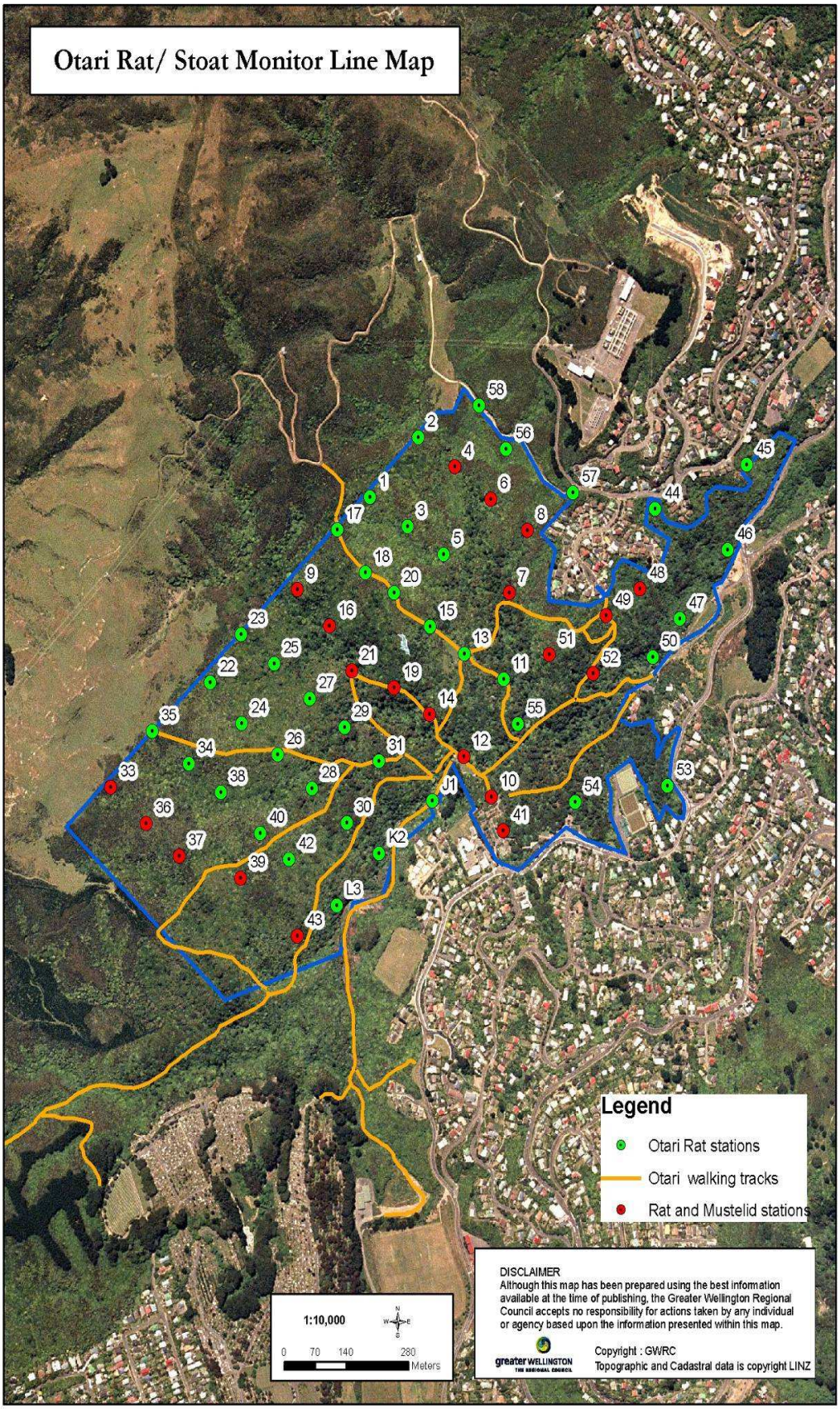
Date: 14/04/2008

Report Checked and Approved for Release:

Murray Hudson
Senior Biosecurity Officer (Investigations)

Date: 14/4/08


Otari Rat/ Stoat Monitor Line Map
Legend
Otari Rat stations
Otari walking tracks
Rat and Mustelid stations
1:10,000
0 70 140 280
Meters
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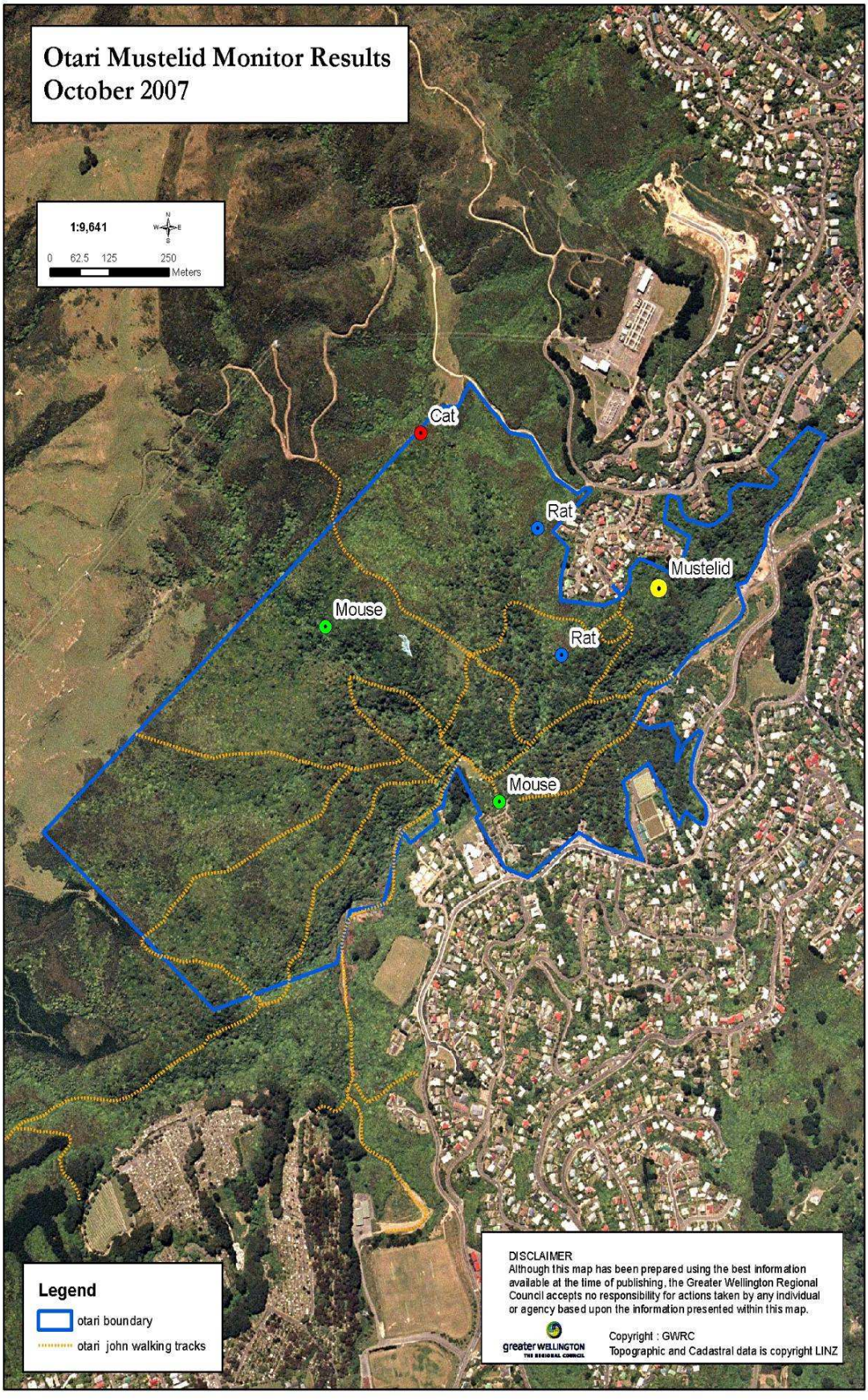
Otari Mustelid Monitor Results
October 2007
1:9,641
0 62.5 125 250
Meters
Cat
Rat
Mustelid
Mouse
Rat
Mouse
Legend
otari boundary
otari john walking tracks
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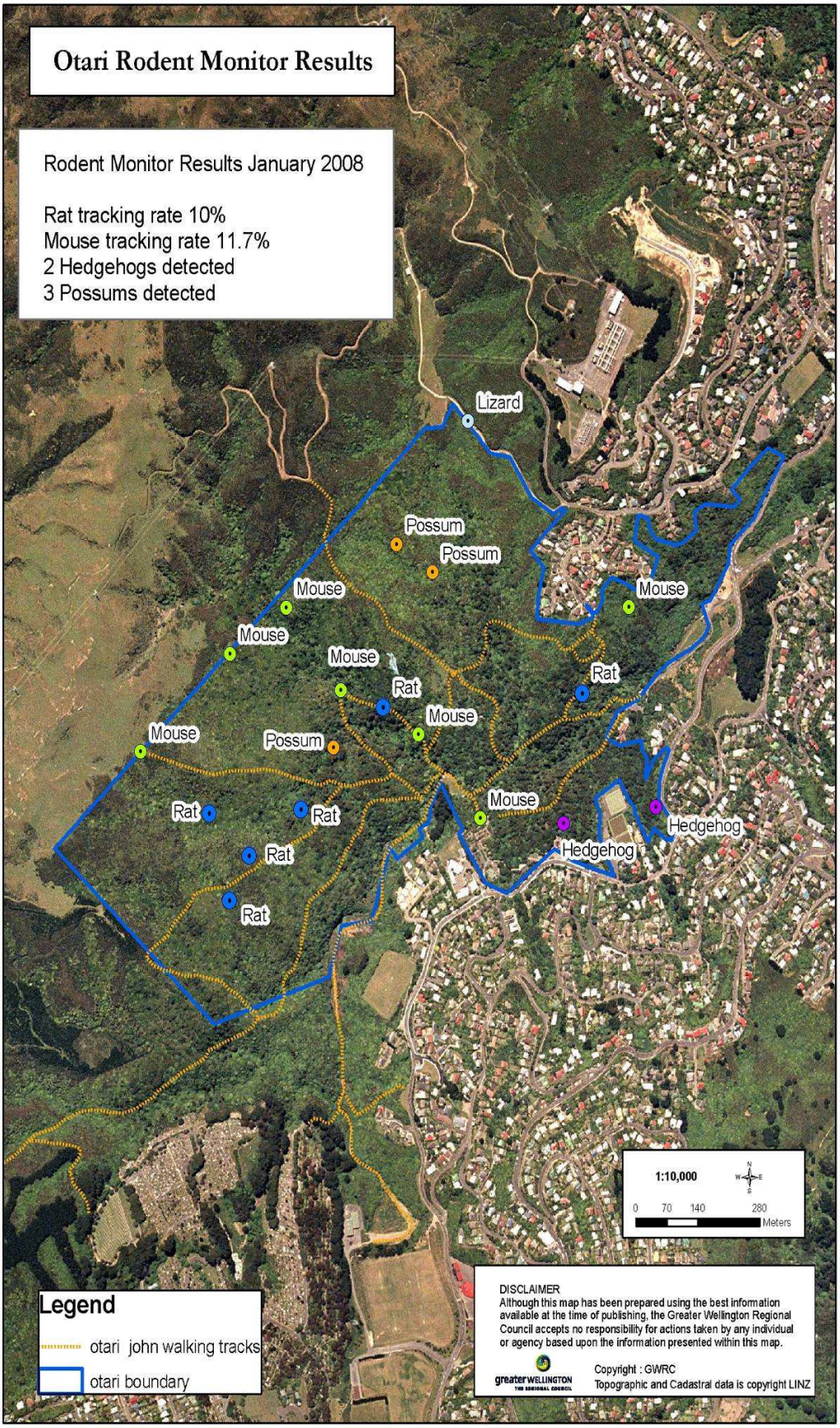
Otari Rodent Monitor Results
Rodent Monitor Results January 2008
Rat tracking rate 10%
Mouse tracking rate 11.7%
2 Hedgehogs detected
3 Possums detected
Lizard
Possum
Possum
Mouse
Mouse
Mouse
Mouse
Rat
Rat
Mouse
Mouse
Possum
Rat
Rat
Rat
Rat
Mouse
Mouse
Hedgehog
Hedgehog
1:10,000
0 70 140 280
Meters
Legend
otari john walking tracks
otari boundary
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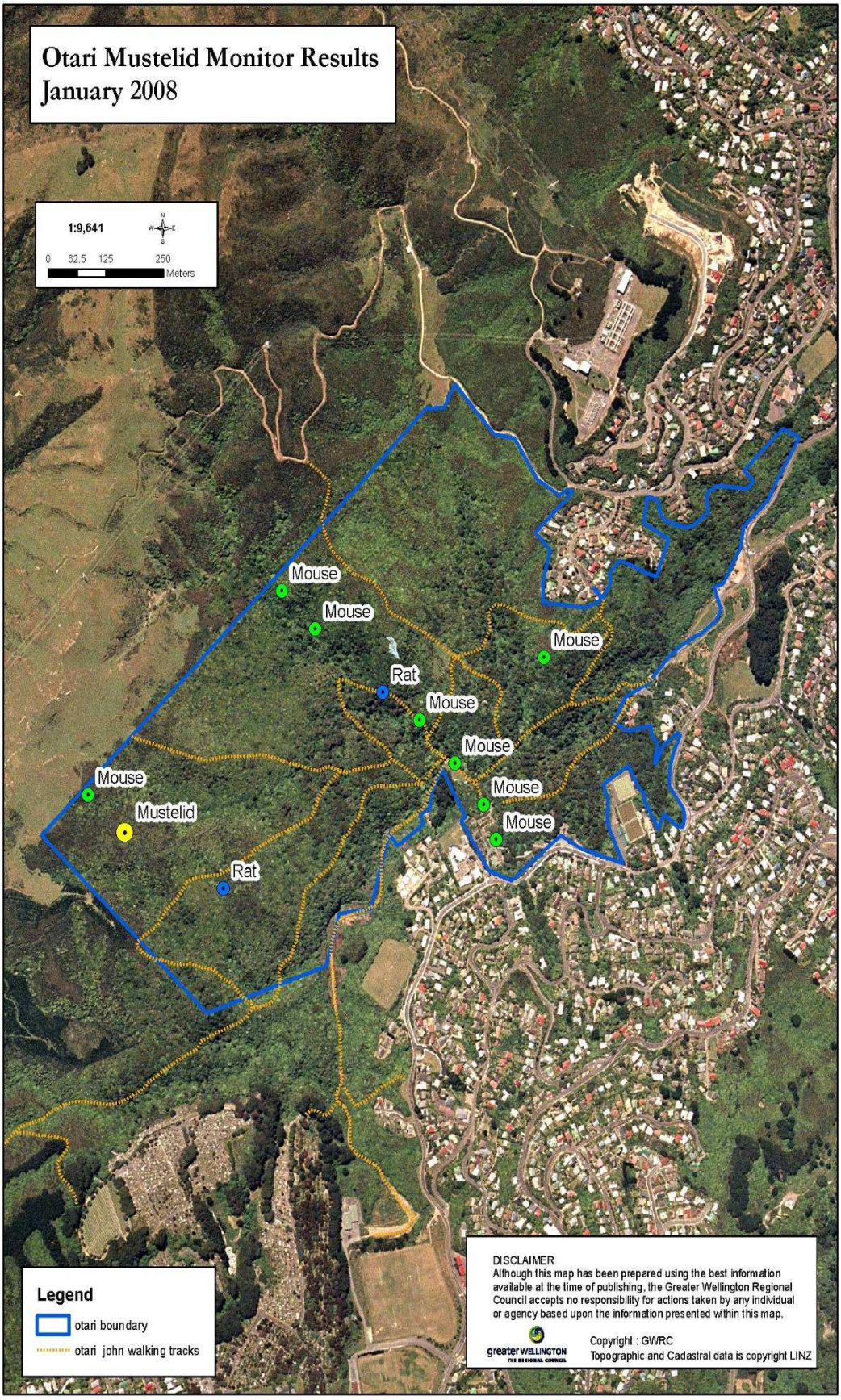
Otari Mustelid Monitor Results
January 2008
1:9,641
0 62.5 125 250
Meters
Mouse
Mouse
Mouse
Rat
Mouse
Mouse
Mouse
Mouse
Mouse
Mustelid
Rat
Legend
otari boundary
otari john walking tracks
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