



Date: 15 April 2019

To: s9(2)(g)(ii)

CC: s9(2)(g)(ii)

From: s9(2)(g)(ii)

**Subject: Monitoring results of the Wilberforce possum control programmes
September 2018**

Context

Kaikawaka Cedar and Hall's Totara forest plant communities in the Wilberforce (beech gap) are highly significant in terms of extent and composition. Possums are a significant threat to the health and integrity of the forest through browsing heavily on both Mountain Cedar and Hall's Totara, reducing foliar cover and can cause or contribute to tree mortality. The impacts of possum browse are obvious with severe defoliation, extensive dieback and mortality of emergent and canopy tree species are now common. For the observed forest dieback at the Wilberforce, heightened damage appears to have occurred since the arrival of and with the subsequent increase in the possum population. Possums will need to be controlled to significantly lower levels than pre-2012 RTC trap catch levels to have confidence that possum damage will be minimised.

The site was treated with an aerial operation in 2012 by OSPRI for the control of TB. A possum RTC monitor undertaken in 2017 resulted in an average trap catch of 4.5% with individual line ranges from 0 to 13.6% which is considered relatively low to moderate levels of possums. Note: RTC monitoring was undertaken using raised bracket sets (due to the potential for kiwi and weka in the area) which has a lower catch rate than standard sets. The 2017 result was sufficient to trigger a possum operation in 2018.

RTC trap catch results from 2002 - 2017

YEAR	AVERAGE CATCH RATE	HIGH LINE	LOW LINE
2002	14.4%	32%	0%
2008	13.3%	48%	6.7%
2010	12.3%	20%	6.7%
2013	3.1%	16.9%	0%
2017	4.5%	13.6%	0%

During the consultation phase of the aerial 1080 operation, an agreement was reached to provide an opportunity for the NZDSA to demonstrate ground control can achieve the same possum results as an aerial 1080 operation. The upper Wilberforce valley was excluded from the aerial 1080 operational area to trial ground-based possum control undertaken by NZDSA.

Aerial 1080 operational details

The aerial operation was contracted to OSPRI

	Pre - feed	Toxic
Sowing date	7/9/18	27/9/18
Bait	6g	12g
	Cereal pellet coated with EDR (deer repellent)	0.15% 1080 #7 cereal pellet coated with EDR
Sowing rate	1kg/ha	2kg/ha

Ground control operational details

s9(2)(a) (private operator) undertook a ground-based cyanide possum control operation from 23/6/18 for 5 days around the bush edge at the lower end of the upper Wilberforce valley extending approximately 1km upstream of Urquhart's hut, along Burnett's stream to Weka Burnett biv and up into Gibson & Griffiths stream (see map). 209 possums were removed from this operation.

s9(2)(a) made mention of a trapper who undertook 10 days of trapping 2 days after he left and removed another 70 possums. There are no contact details for this trapper nor information on where he was trapping.

Post operation possum monitor (Refer map Appendix1)

A seven-night possum wax tag monitor was undertaken on 7th and 8th February 2019 approximately 4 months after the aerial 1080 operation. Due to weather conditions, the monitor was shortened to 6 nights.

	Aerial 1080 operation area	Ground control operation area
# of wax tag lines	20	10
# nights	6	6
Wax tag index (95% CI)	0%	21% (equivalent to 6.5% RTC)

Highest individual line index	0%	60%
Lowest individual line index	0%	0%

Rodent monitoring

Rodent monitoring was undertaken as requirement for 1080 operations in kea habitat in non-mast years to evaluate the potential benefits to kea.



Blue lines are the locations of the rodent monitoring lines.

	Rat tracking %	Mice tracking %
August 2018 (pre-operation)	0%	49%
October 2018 (post operation)	0%	11%

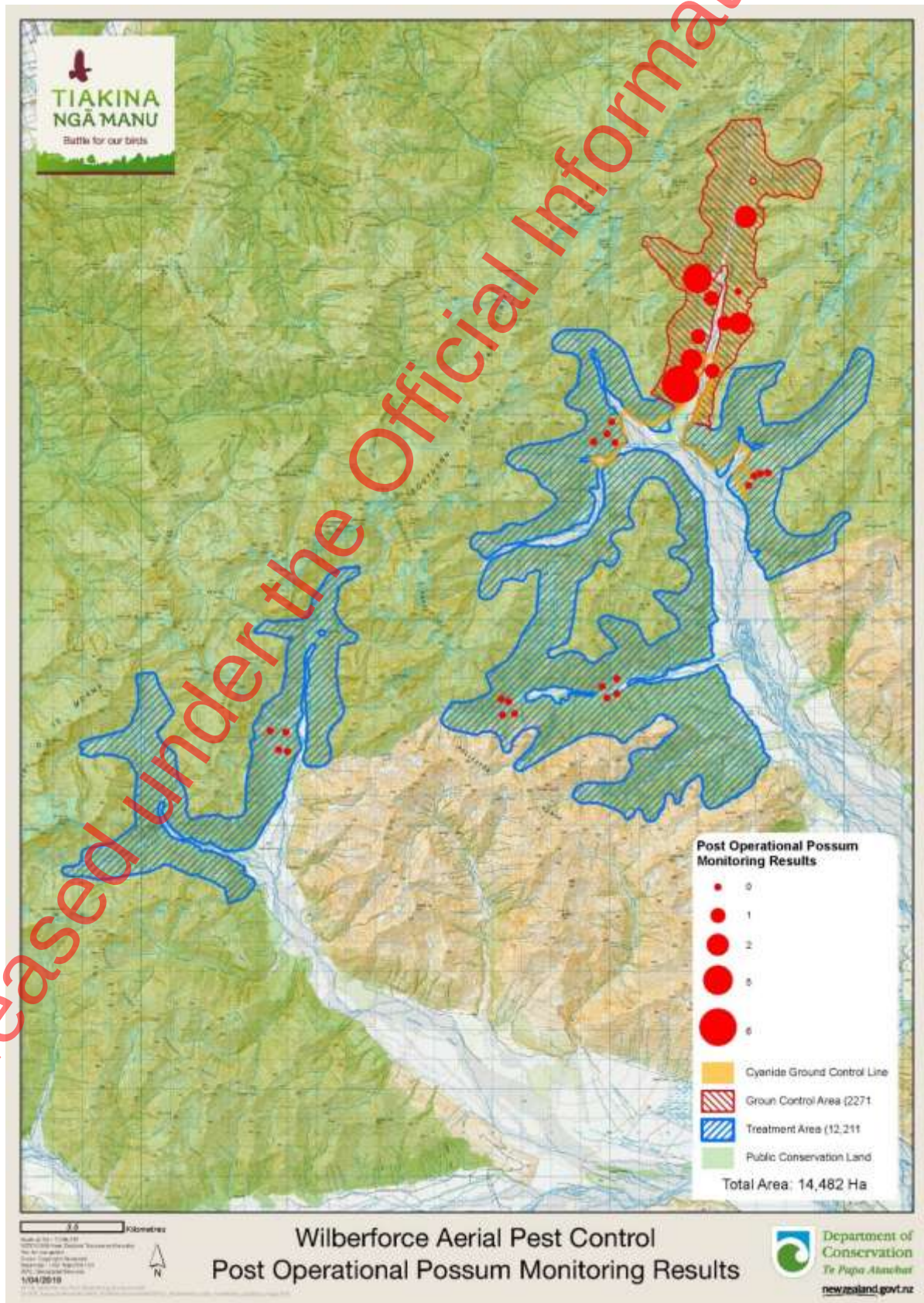
Rats were not present before or after the 1080 operation.

Mice tracking % reduced in October after the operation. However, mice tracking similarly reduced at other non-treatment beech forest sites in the Waimakariri basin.

Future management

Possum monitoring will be planned to be undertaken in approximately 3 years' time to monitor when further control is warranted to maintain possums at low levels.

Appendix 1:

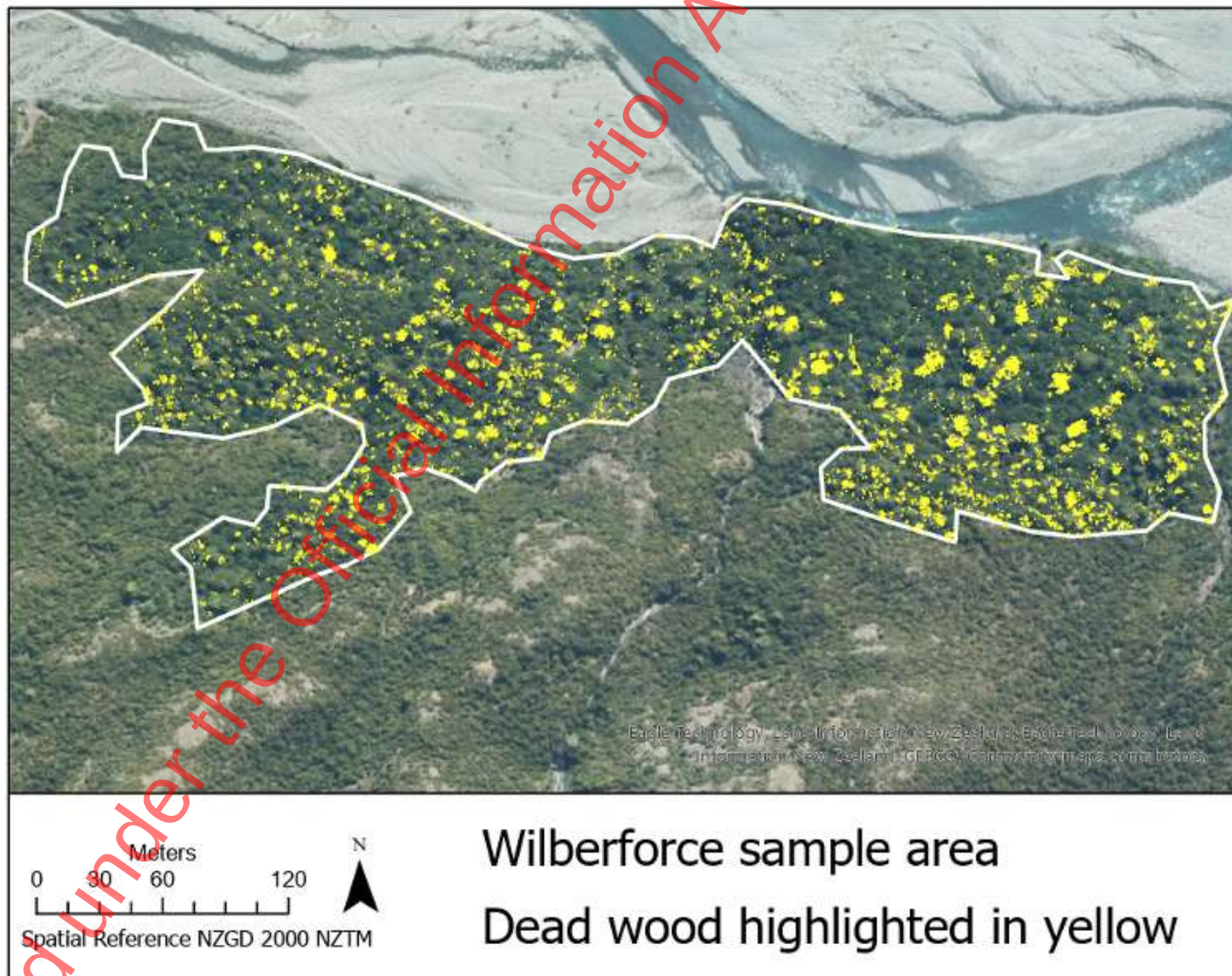


WILBERFORCE VALLEY CANOPY HEALTH MONITORING

The image below shows the area of forest over 6m tall within the Wilberforce treatment area.



White bordered polygon identifies forest trees over 6m tall.

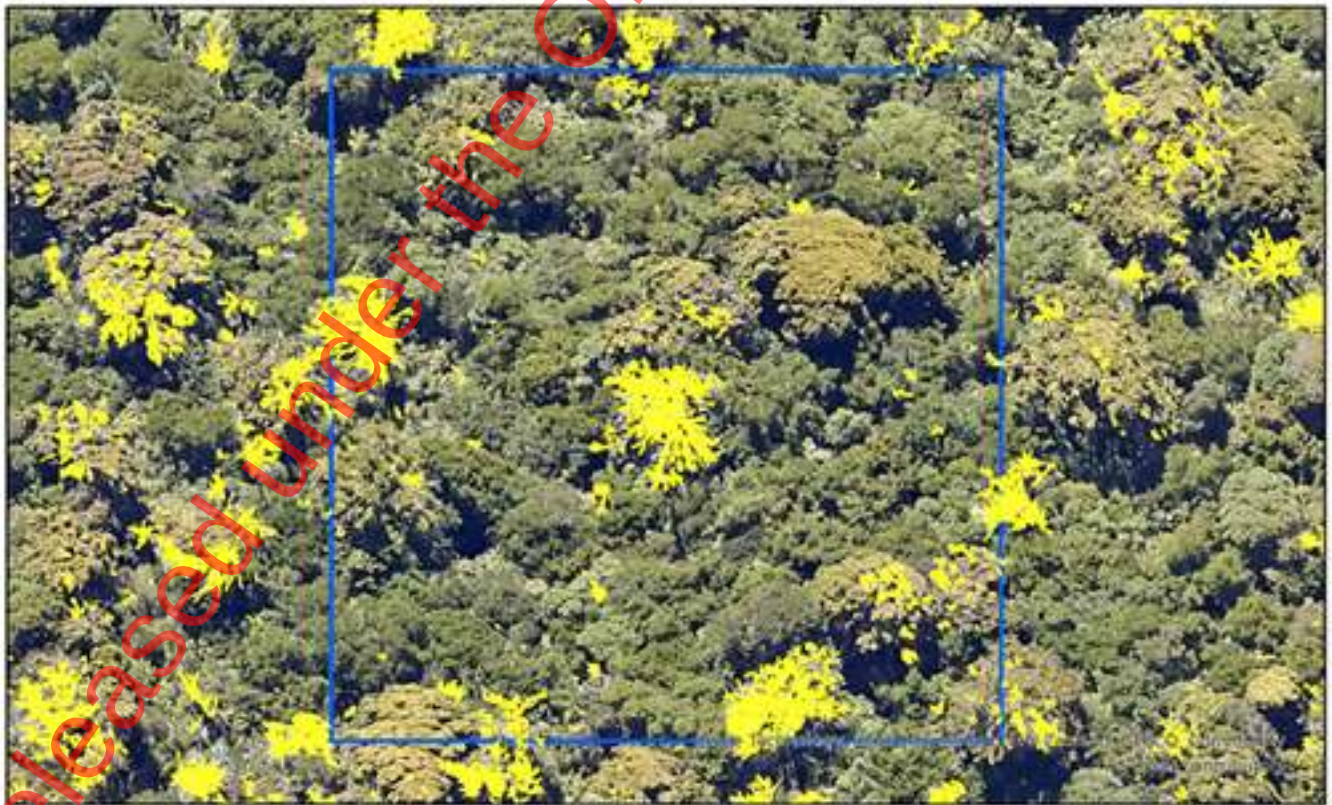




Meters
0 5 10 20
Spatial Reference NZGD 2000 NZTM



Wilberforce sample area - detail
Dead wood highlighted in yellow



Field checked trees within modelled areas

Meters
0 5 10 20
Spatial Reference NZGD 2000 NZTM



Site and tree id - Wilberforce 55
Species - Mountain Tōtara
Status - Dead

Approx. 50% of the Mountain Tōtara in the image is impacted



Field checked trees within modelled areas

0 5 10 20
 Meters
 Spatial Reference NZGD 2000 NZTM



Site and tree id - Wilberforce 70
 Species - kaikawaka or New Zealand cedar
 Status - Dead

Approx. 50% of the kaikawaka / NZ cedar in the image is impacted