Cape to City predator monitoring: initial knockdown

Preliminary report to Hawke's Bay Regional Council

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Introduction

As part of the Cape to City conservation initiative, Hawke's Bay Regional Council (HBRC) began trapping invasive predators (cats *Felis catus*, stoats *Mustela erminea* and ferrets *M. furo*) in April 2016. Using motion-triggered cameras (camera traps), Landcare Research monitored the results of this predator control. This preliminary report summarises the numbers of predators captured on camera before and after predator control, and fulfils Milestone 1.2 of the Te Mata a Maui contract: *Pest response monitoring and analysis of initial pest knock-down phase in C2C footprint. Produce progress report on localised abundance of predators before and after initial knock-down control, and on predator occupancy modelling by June 30, 2016.*

Methods

An initial round of predator control was conducted by HBRC using live-trapping and subsequent euthanasia. Initial trapping targeted three areas (Fig. 1). Area 1 was trapped from 4–25 April, Area 2 from 25 April–16 May, and Area 3 from 25 May–15 June.

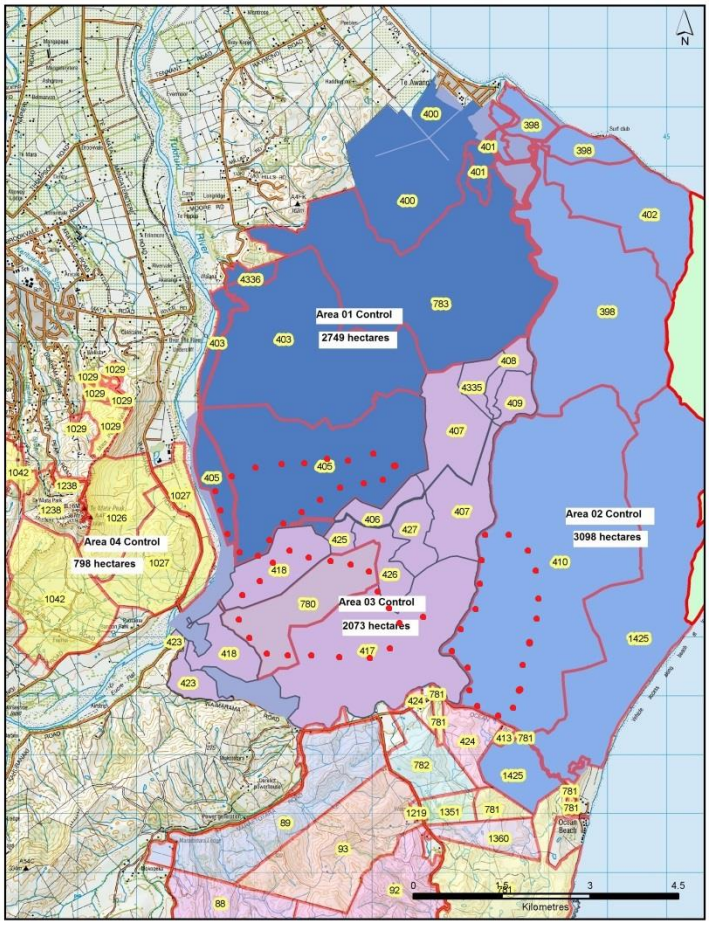

Fig. 1. Map showing the locations of Area 1 (trapped 4–25 April), Area 2 (trapped 25 April–16 May) and Area 3 (trapped 25 May–15 June). Red dots show approximate locations of camera traps.

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This trapping was the first of up to five planned phases of predator knockdown, which will be conducted over 12 months. The next phases will include additional live-trapping, shooting and kill-trapping. An optional fifth phase will involve toxic baiting with para-aminopropiophenone (PAPP) if required.

In each area, 20 camera traps were set 500 m apart in a 'hollow grid' formation (Efford et al. 2005). In a previous trial in Hawke's Bay (Nichols & Glen 2015), a hollow grid of 20 cameras delivered similar cat population estimates to those obtained from a regular grid of 40 cameras. Cameras were mounted 5–10 cm above the ground on wooden stakes. All cameras were programmed to take a burst of three images in quick succession each time the sensor was triggered. A lure vial containing ferret body odour (Garvey et al. submitted) was placed 1.5 m in front of the camera, and secured to the ground with a steel peg. Camera monitoring was conducted for 21 days before predator removal and 21 days after.

The relative abundance of cats, stoats and ferrets was assessed by scoring the number of detections of each species, and the number of cameras on which they were detected, before and after predator control. Following the methods of (Garvey et al. 2016), photographs of the same species > 30 min apart were considered separate encounters.

Results

HBRC staff spent about 500 hrs trapping predators from April –June and caught over 70 cats, 16 ferrets and 1 stoat (R. Dickson pers. comm.). During this time, the permanent network of kill traps was also established in Areas 1, 2 and 3.

Detections of cats declined after control in Area 1; however, there was no evidence of a decline in the other two areas (Table 1). Cat detections increased in Area 2, and remained similar in Area 3. Detections of stoats and ferrets were too few to draw any inference.

Table 1. Numbers of detections of cats, stoats and ferrets in each area before and after initial knockdown control in Cape to City. Figures in brackets show the number of cameras on which each species was detected.

	Cats		Stoats		Ferrets	
Area	Before	After	Before	After	Before	After
1	5 (4)	0	0	0	0	0
2	10 (6)	18 (8)	0	0	2 (1)	0
3	16 (9)	14 (8)	1	0	1	1

Discussion

The initial round of trapping and removal appears not to have significantly reduced the relative abundance of predators. This is in contrast to the results of a similar trapping operation in 2014 on Waitere Station, in which the abundance of cats and ferrets declined by around 90% after three weeks of trapping (Nichols & Glen 2015). The difference in this case may be due to reinvasion from adjacent properties in the Cape to City area where there is no predator control. In particular, properties 398 and 1425 adjacent to the camera grid in Area 2 (Fig. 1) have high abundances of predators and rabbits (R. Dickson pers. comm.).

At least three phases of follow-up control are planned before handing over responsibility for maintenance trapping to landholders. This additional control may be required to achieve a

measurable reduction in the relative abundance of predators. The camera trapping results reported here will help guide the on-going control effort. While additional control should be conducted in all three areas, the results of this first round of monitoring suggest that follow-up control in Areas 2 and 3 is of highest priority.

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References

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