

# Project update: Readymade feral cat bait

## Rakiura 2023

### Background

Feral cats kill native birds, lizards, bats, and insects. Ground nesting birds like the tūturiwhatu/southern NZ dotterel on Rakiura/Stewart Island are particularly vulnerable. Current tools for eradicating or controlling feral cats at scale are limited, expensive, and ineffective. There are only two feral cat baits registered in New Zealand - but they are too labour-intensive for large areas, or their success has been mixed. The Department of Conservation (DOC) is researching new tools to eradicate feral cats to save precious species on our most important islands for nature – including Rakiura and Auckland Island. DOC has developed a readymade feral cat bait that is an 18 g meat bait that contains 4.5 mg of the toxin sodium fluoroacetate (1080). Our research suggests the novel bait is a promising, targeted tool for eradicating and controlling feral cats. Research trials of both the non-toxic and toxic versions of the bait showed that feral cats eat it and animals like native birds and deer did not. Building on recent field trials on Auckland Island, we are furthering our understanding of the best way to use this new cat bait.



Readymade feral cat bait

### Field trial method

In winter 2023, DOC trialled a new toxic bait for feral cats on NE Rakiura/Stewart Island. Some hunting blocks were closed during the 10-week trial period. People could still recreate in the area and were advised by signs of the trial and to follow warnings. We consulted with local iwi, hunting groups, government, NGOs and other community groups. We shared information and worked to reduce impacts to people.

In early July 2023, a team established the bait and trail camera grid. There were a total of 600 bait points and 115 trail cameras over 1725 ha, with cameras monitoring 19% of baits. Bait density was 1 bait per 2.9 hectare (equivalent to 1 bait per three full size rugby pitches).

Two rounds of non-toxic bait was hand-laid over three weeks and camera footage gathered to allow analysis of feral cat population density and abundance before the toxin application. Abundance monitoring of possum and rodents was undertaken to understand what impact they had on bait availability to feral cats.

Three rounds of toxic bait was then hand-laid over three weeks and camera footage gathered. To check for mortality, teams radio tracked VHF-GPS collared feral cats and VHF tagged tokoeka while toxic bait was present on the ground. Bait degradation trials were completed to understand how environmental conditions affected baiting outcomes. All unconsumed toxic bait was removed from the treatment area after baiting was completed.

A second camera monitoring phase with two rounds of non-toxic bait was completed over three weeks after the toxic baiting period. This was to take a second measure of feral cat relative abundance,



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activity and density after the toxic bait was applied, and to confirm which individuals identified during the pre-toxin phase were deceased. A second possum abundance measure was completed to find out if the bait affected their population.

The bait grid, trail cameras and non-target monitoring devices were removed at the end of the trial in early September. Possum carcasses were installed following the toxic baiting period to inform the caution period. Carcass monitoring to inform the toxin caution period was completed in early January 2024.

## Trial results summary

Feral cat relative abundance, activity and population density declined markedly following the toxin application. The camera footage showed that six VHF-GPS collared cats were present inside the treatment area during toxic baiting. Five VHF-GPS collared cats were found deceased during the toxic baiting period. Tissue samples from all five deceased feral cats tested positive for sodium fluoroacetate residue.

*Measures of feral cat relative abundance (naïve camera occupancy), activity (chance of detection per survey day), and population density prior to and following toxin application during the readymade feral cat bait trial on Rakiura in 2023*

Measure	Before toxin	After toxin	Change
Naïve camera occupancy of feral cats (%)	61%	18%	-71%
Chance of feral cat detection per survey day (%)	2.75%	0.82%	-70%
Cat population density (cat per km <sup>2</sup> )	0.92 (0.87-0.97) cats per km <sup>2</sup>	0.20 (0.18-0.22) cats per km <sup>2</sup>	-78%
GPS-VHF collared feral cats inside treatment area	6	1	-83%

No VHF tagged tokoeka died during the toxic baiting period.

Rats and possums consumed both non-toxic and toxic bait. Possum abundance did not change following the bait application. Deer were observed on camera when bait was present 110 times and tokoeka were observed on camera when bait was present 417 times. No tokoeka or deer or were observed consuming either toxic or non-toxic bait. The only occurrence of a native species consuming either non-toxic or toxic bait was a tomtit that pecked a non-toxic bait on one occasion.

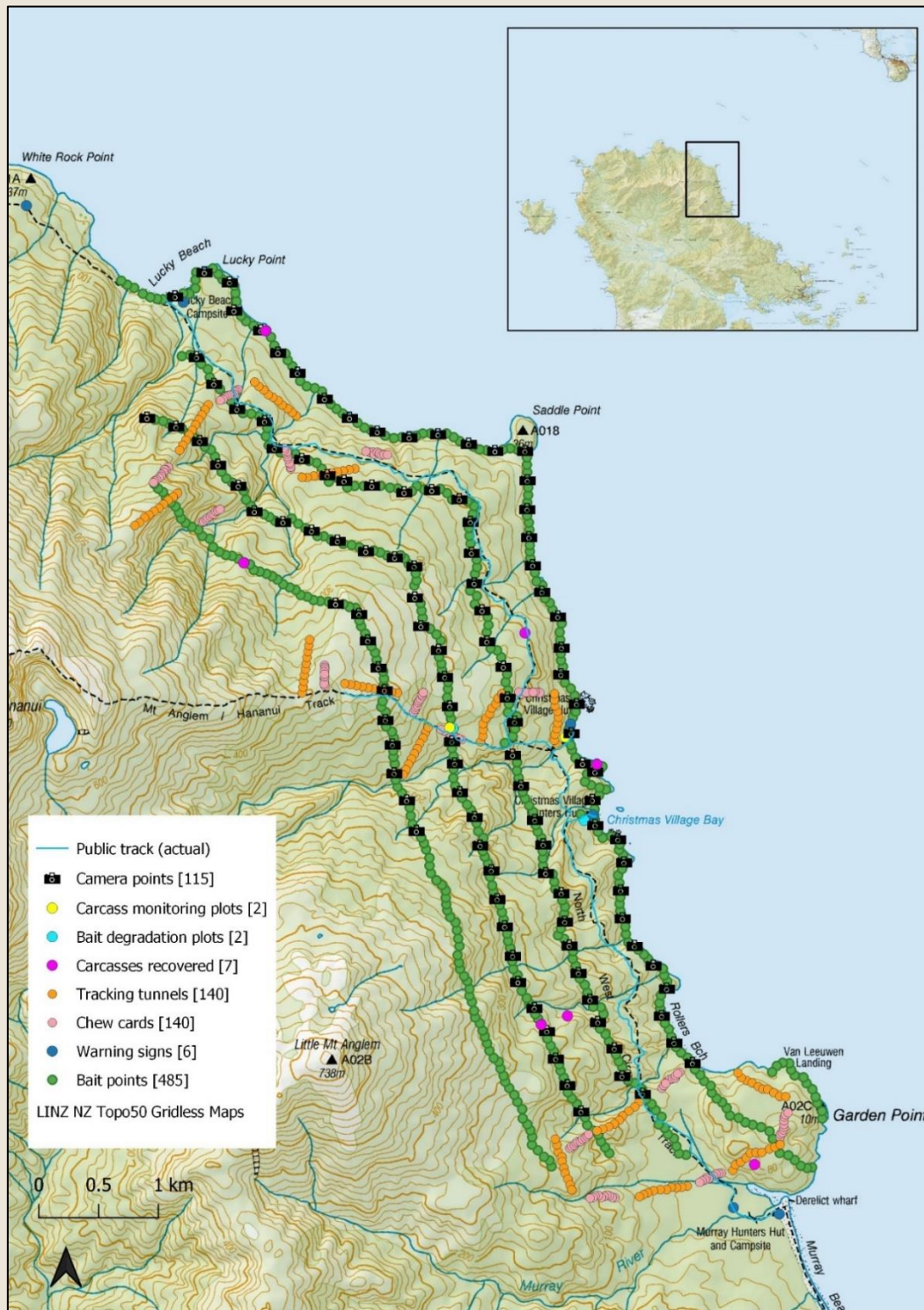
Assays of bait showed that the toxicity reduced following rainfall. Carcasses and non-toxic baits were fully degraded after 4 months, providing confidence there were no toxin residues left in the treatment area. These results allowed the caution period to end in early January 2024 and warning signs were removed.



*Feral cat consumes readymade feral cat meat bait during trial on Rakiura, winter 2023*

## Next steps

- May-July 2024: complete data analysis and prepare peer-reviewed articles arising from findings.
- July-December 2024: prepare an efficacy and risk assessment package to support the registration application for readymade feral cat bait, combining evidence from non-toxic palatability trials and toxic field trials from 2019 - 2023



Study design and features of the readymade feral cat bait trial on Rakiura in July – August 2023, including the camera grid (bait at each camera point), bait grid, non-target species monitoring devices, bait and carcass degradation plots, warning signs and location of carcasses retrieved during the trial (n = 5 feral cats; n = 2 rats)