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Short webinars for environmental policy-makers and practitioners

Eradicating The Last 5% - Catching the Uncatchable Rogue

The following questions were asked during our live webinar with Graham Hickling and Patrick Garvey but due to time restrictions, we were unable to answer these in the session.

Is it possible that the last of a targeted species have more of that pests traditional food supply and therefore don't need to eat any perceived risky foods or enter unknown 'risky looking' traps?

Yes, this is one reason why 'the last 5%' are difficult to trap or bait. As the number of predators drop, intraspecific competition for food decreases, so food lures are likely to be less effective. Using cue based on other motivations (i.e., the 4Fs) such as odour from male/female of the same species or predator odour, could help target these pests at low density when food lures are not as effective. Audio lures and sound lures are among the possibilities we are exploring.

Is the use of gene drive more likely to achieve a better long term result than dropping toxins and trapping for all these pests?

The short answer is that gene drive and other GM-based research is not currently permitted by the NZ government. More generally, a feasible gene drive technology for mammals is still decades away and if developed would most likely result in sustained control, rather than eradication, of predators. Gene drives do show some long-term promise but trapping and toxicants will continue to be key management tools for the foreseeable future.

What is the wriggle test?

This is a simple test used to infer docility/reactivity. Individuals are suspended in an unfamiliar handling bag for 60 seconds and 'time spent immobile' is recorded using a stopwatch. Reactive animals are less mobile during human handling and bolder individuals less docile, which is akin to the 'freezing' behavioural response of reactive personality types.

Can you give us the url please?

Our Programme URL is: <https://www.landcareresearch.co.nz/discover-our-research/biosecurity/animal-pest-management/eradication-science/>

We, at Friends of Rotoiti, use a range of traps (Victors, DOC200s, and Sentinels). Is human scent on traps likely to be an issue for us?

Human scent alone is unlikely to be a repellent. A recent paper (Watson and King, 2020) found stoats were actually attracted to male human body odour and a trial on ship rats in Australia found no effect of human body odour on interaction rates. However, unnatural synthetic scents are often found on human hands, such as deodorant, soap, sunscreen, cigarette smoke, etc, are believed to deter pests.

Wouldn't neophobia and boldness be at opposite ends of the same scale?

According to the literature, neophobia and neophilia are on the opposite ends of the spectrum, as are bold and shy. For example, you could have a bold animal that is neophobic. However, your point is valid in the sense that a bold animal and a neophobic animal will have likely opposite responses to a trap.

Auditory trails? Does it explore attraction, scaring or tracking of sounds?

We are focused on attraction - i.e., luring animals to traps or baits, particularly over large distances. Our collaborators Cacophony are recording animal responses to audio lures (e.g., conspecific call) and assessing locations of the source. Scaring is not the focus of the trials, but we are testing predator cues and assessing responses, as scary cues may be useful as a management tool in some situations.

How do you assess what the true 'average' of the population is when to catch them in the first place you are putting a filter on the type of animals you will catch?

What we expect with a trapping or toxicant operation is that the most vulnerable individuals succumb first, and then with additional time and effort we will start sampling the more recalcitrant individuals. Getting the final 5% will likely require a change in method (e.g., to sniffer dogs). Eventually we hope to have data on individuals that cover the full spectrum of behaviour ... and at that point, retrospectively, we should be able to reach some conclusions about what "average" behaviour might look like.

How large is a problem feral cats? Are they target of predators control program?

Feral cats are a very significant conservation threat in NZ and overseas. Feral cats are targeted for control in some high-priority NZ conservation areas, although presently there are few large-area control tools for cats. We are not researching cats as part of this particular programme, however.

What species are you trialling the 4Fs on? Hopefully, you include weasels and not just stoats as they are behaviourally very different to stoats and are an emerging problem for many conservation practitioners.

Very true! Weasels are not 'small stoats'; in fact, stoats are closer relatives to ferrets than to weasels. Our funding is for research focused primarily towards stoats, ship rats and possums, but we do presently have five weasels in captivity that will be tested with 4F cues and additional lures. Our current sample size is small, but weasels are not easy to capture in Canterbury; we hope to increase our sample over time.

I am very keen to know what the research programme is for MR3, the mātauranga māori inputs and knowledge of pest control. What research is being undertaken?

We have begun work with our iwi and hapū partners to identify mātauranga māori associated with animal behaviour, including traditional techniques for trapping and luring wildlife. We have initiated a kāhui Māori process as a first step to towards this, and to ensure that our research responds to māori and Moriori priorities, and that the control tools we develop will be culturally acceptable. A future seminar will explore this aspect of our programme.