



# Innovations in tools and technologies

Sir Paul Callaghan (2012)  
*An “Apollo programme”  
for New Zealand*





# Tool development

To date, new Predator Free projects need over 1,000,000 trapping devices

And also surveillance, communication and management systems

Requiring:

- design and engineering
- manufacturing and supply chains
- servicing, training and monitoring





# Tool development

- 19 new and improved tools since 2019
- Meeting immediate landscape elimination project needs
- Strong national scales to date
- International revenue developing





## Better luring

### Critter Solutions

- *Ezylure* – automatic long-lasting compact lure dispenser

### Boffa Miskell

- *PoaUku* - mustelid & possum/rat long-life recyclable, rechargeable ceramic lures





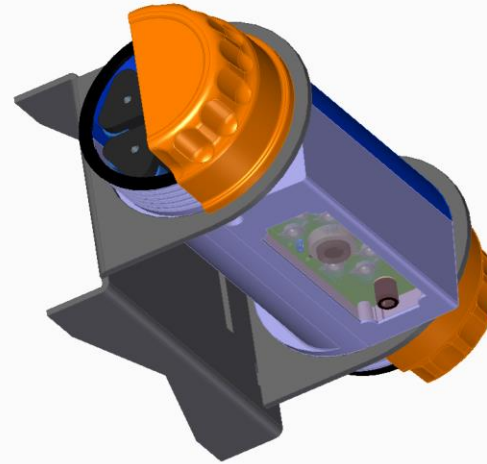
## Remote monitoring

### eTrapper

- *Baitsense* – real-time accurate bait level monitor in bait-stations

### Critter Solutions

- *AI thermal-triggered PIR camera* –long-life (3-6 months on AA batteries)



Device CP-010004  
20-Jun, 2023 6:20pm

mammal-possum

 7.49v



# Remote communications

## Encounter Solutions

- *Remote locking* – for live-capture cage and leghold traps

## Critter Solutions

- *Flexi-comms* – easy to use modular comms (cell / direct to satellite)





## Supporting software

### trap.nz

- *Deployment module* - supporting the management of initial deployment

### trap.nz

- *Comms module* - direct sensor network (LoRaWan) comms to trap.nz

### Manaaki Whenua / trap.nz

- *CamTrap* - A.I. image recognition for rapid assessment of images





## Self-resetting traps

### **NZ AutoTraps**

- *AT220* – resetting trap based on DOC200 trap

### **Goodnature**

- *AutoRat* – rat resetting trap for the urban market

### **Hammerforce**

- *Airbow* – resetting trap based on compressed air nail-gun technology





## High-interaction traps

### **The Cacophony Project**

- *HIT* - open-architecture motion-sensing multi-species single-shot cage trap



## High-interaction traps

### The Cacophony Project

- *HIT* - open-architecture motion-sensing multi-species single-shot cage trap

### Critter Solutions

- *AI Kill-Trap* – Resetting trap for possums, mice, rats, mustelids and hedgehogs





## Selective toxin application

### Envico Technologies

- *Spitfire* – selective resetting toxin application for possums, rats & stoats






## Selective toxin application

### Envico Technologies

- *Spitfire* – selective resetting toxin application for possums, rats & stoats

### Invasive Pest Control

- *Norbormide* – World-first effective specific toxic baits for ship and Norway rats



**Kill Rats FAST With RATICATE,  
The FAST Rat Killer**

Now kill rats fast...fast...FAST. Faster than you may have thought possible. Faster than old time methods. Faster than ordinary "bulk" products. RATICATE Rat Killer kills rats the fast way. Fast—in one feeding. Fast—in hours, not days. Switch now to fast, fast RATICATE, the fast rat killer.

**RATICATE**  
COMMON BROWN RAT KILLER  
— DISCOW —

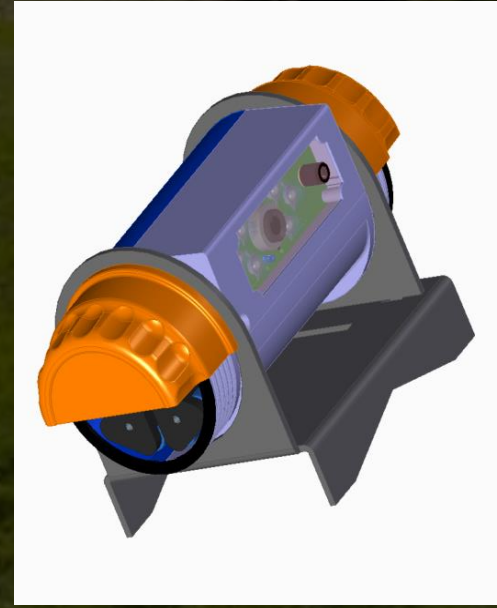
**The FAST Rat Killer**

15-oz. size—now only \$1.49*
25-oz. team bait can—now only \$1.99*

\* 1988 Tavel Laboratories, New Brunswick, N. J.      \* Manufacturer's suggested retail price



# Operational trials





# Operational trials





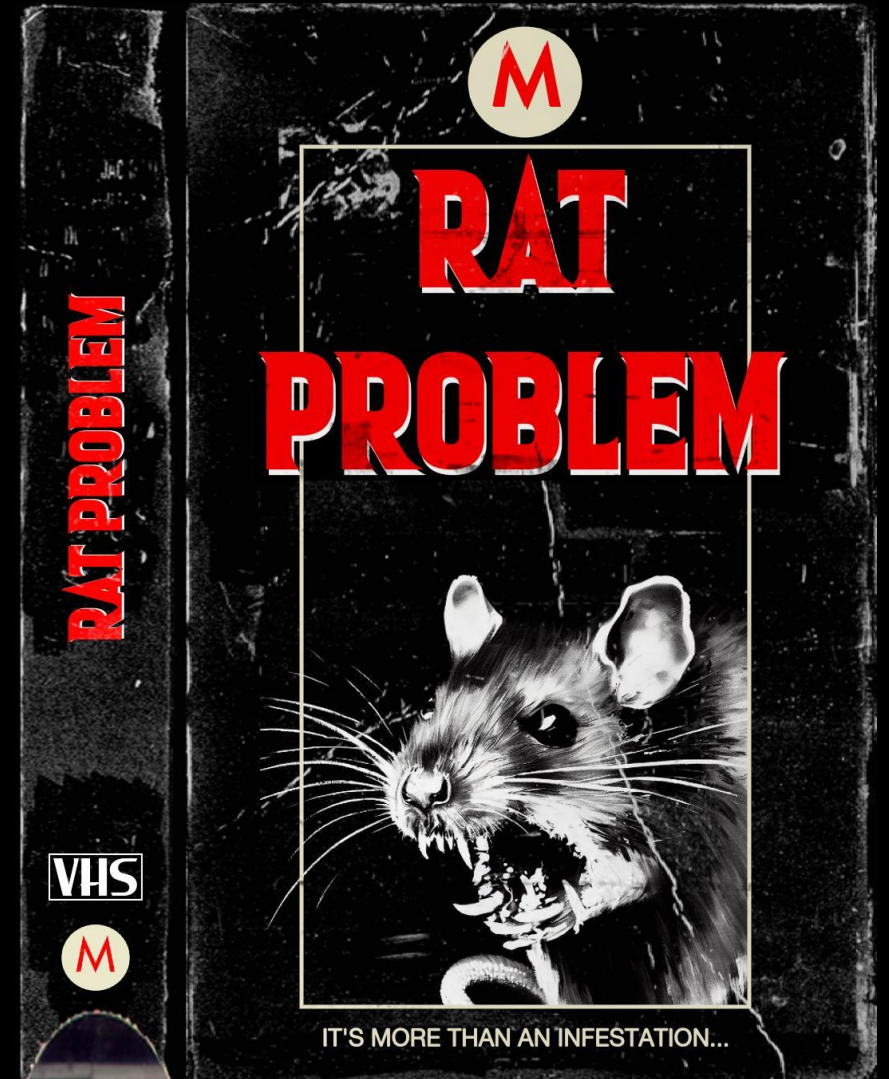
# Operational trials





# Remaining capability hurdles

- Rats and mustelids: difficult to eliminate in all contexts with current tools and approaches
- Maintaining social mandate
- Surveillance against predator reinvasion at large landscape scale
- Cost-effective approaches for scaling up





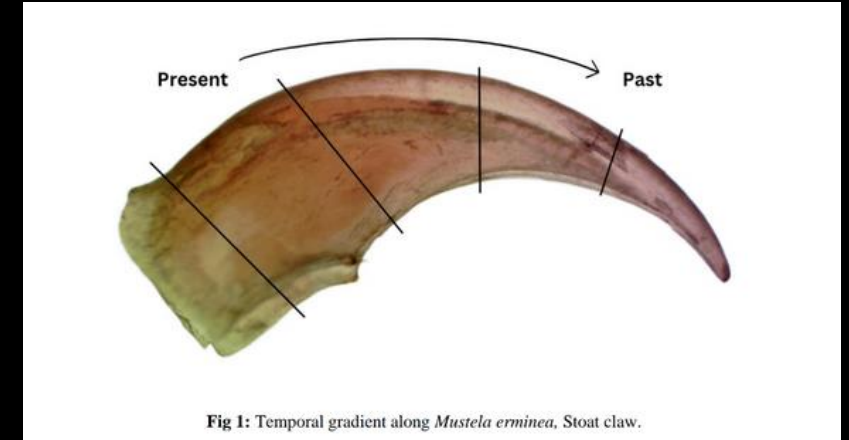
# New technologies under development



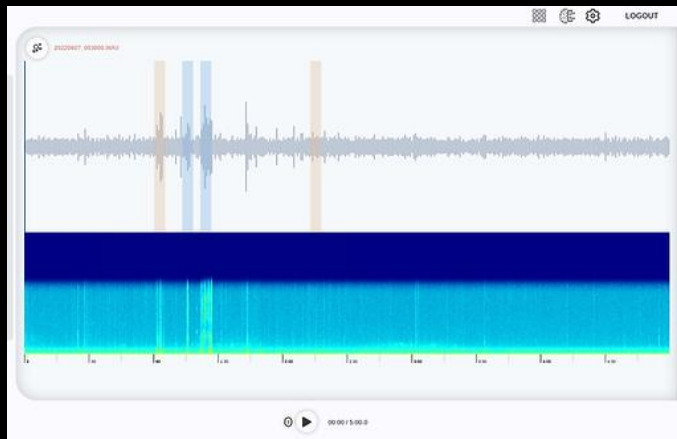
Selective toxins / toxin delivery  
Chemical fertility control?



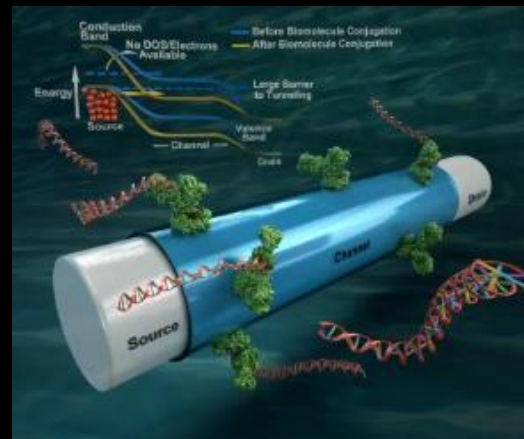
Genetic control technology



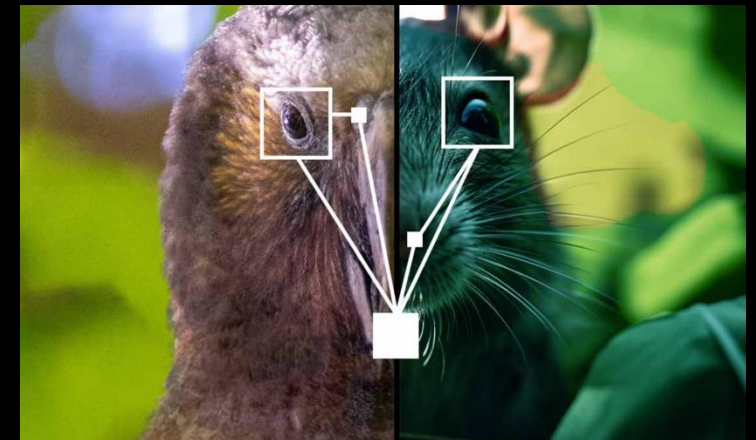
Isotopes



Audio detection



Biosensors



Advanced A.I.





[www.pf2050.co.nz](http://www.pf2050.co.nz)