



Science underpinning management – showing you are making a difference



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Sanctuaries & killing predators

- Satisfying - killing pests!
- “we killed x possums this year!”
- So - “there *must* be a difference!
- “Show me the money!”
 - without confirmation
it's 'arm-waving'





Killing predators

- Have we made a difference?
- Have enough rats/stoats/possums been killed?
- Was there a response in numbers of native animals/plants?
- ...and what was the response of other predators??

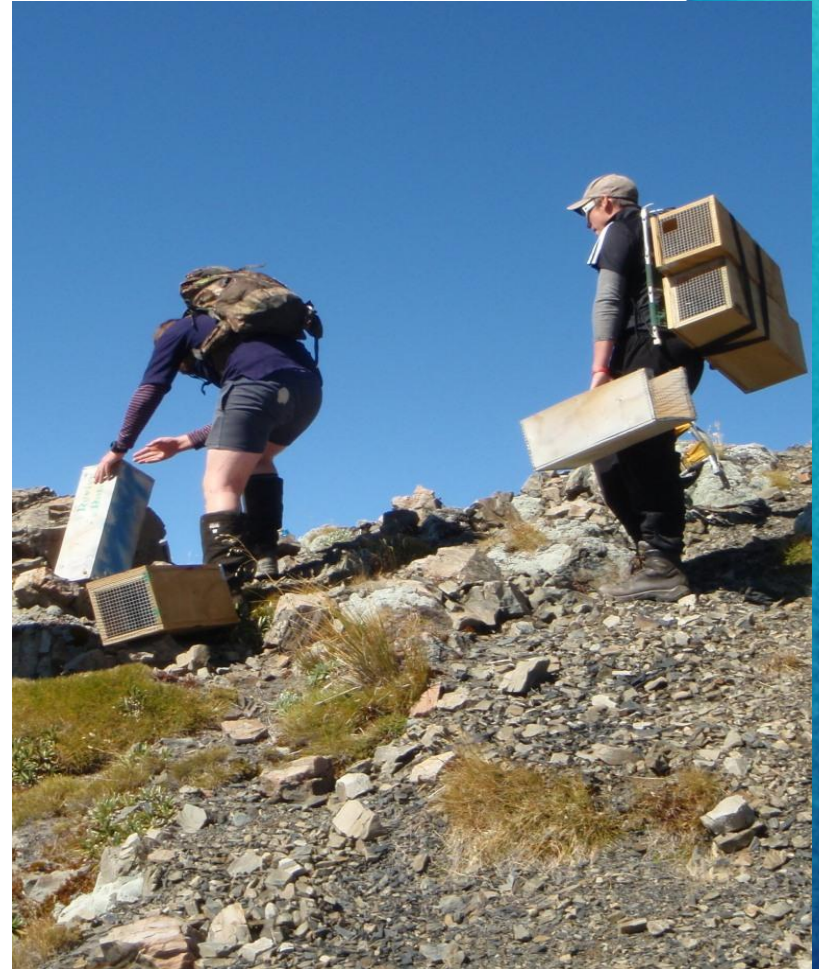




Killing predators

- Costs \$\$
 - Takes time
 - Takes effort
-
- Is the \$\$/time/effort worth it?

Is the accountant convinced?

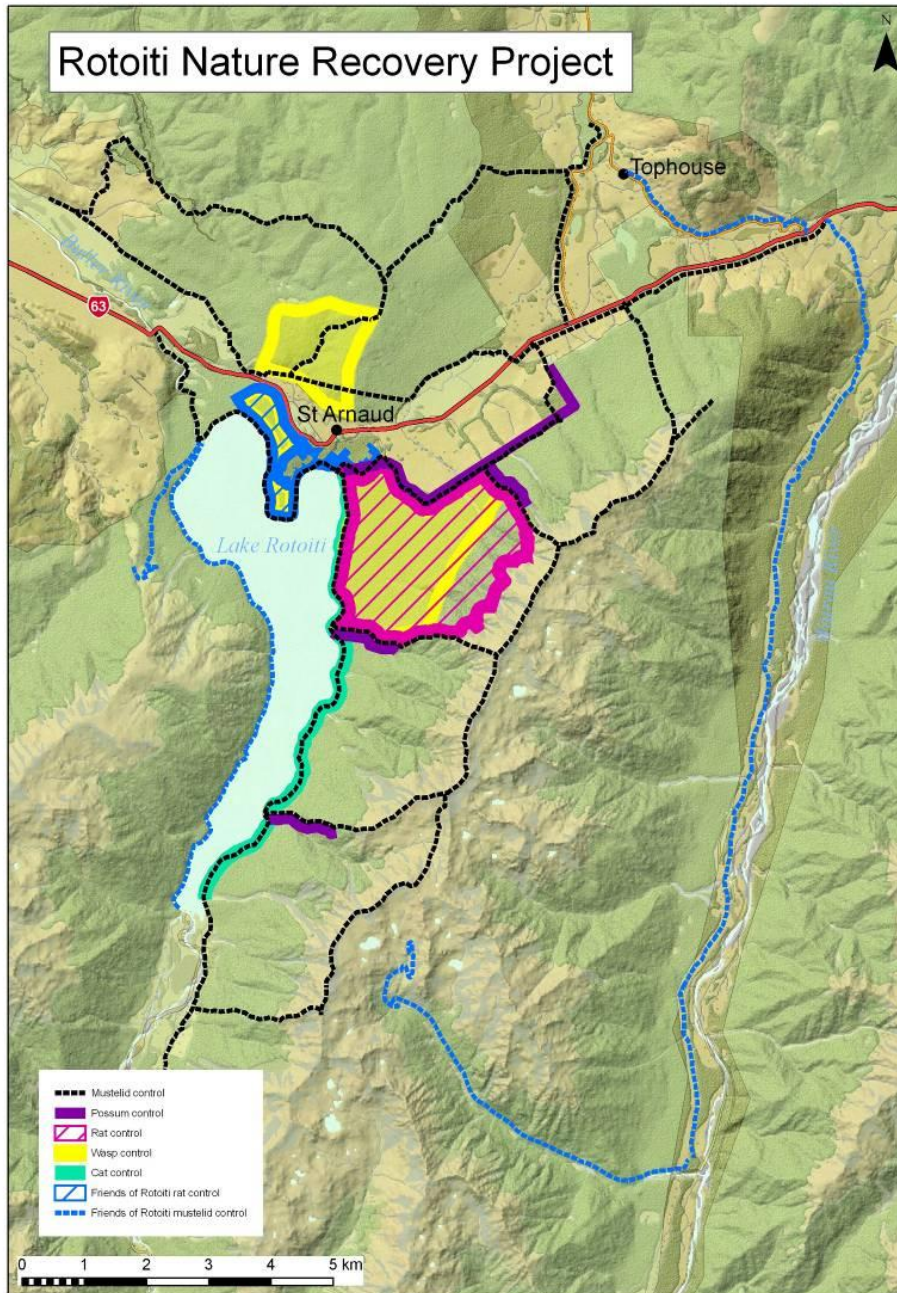


Confirmation that 'kill scores' = conservation gains?

- Killing = fewer pests?
& more native species?
- Need data independent of 'kills'
 - simple, clear, repeatable
- Treatment / non-treatment sites
- Results / outcome

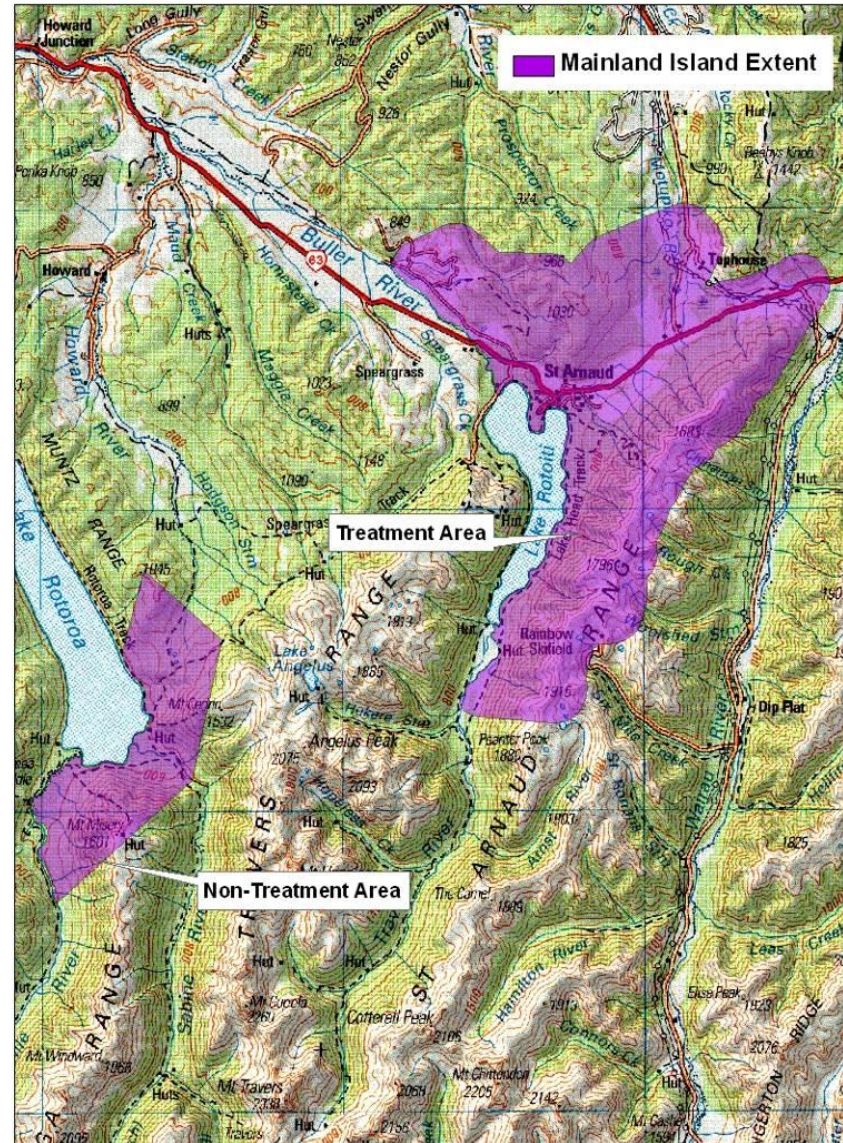


- 600-1900m amsl
- Alpine beech
- Stoat control - 5000ha
- + 5000ha FOR
- Rat control - 900ha +
- Possum/cats
- Wasps



Treatment and non-treatment sites

Rotoiti Mainland Island

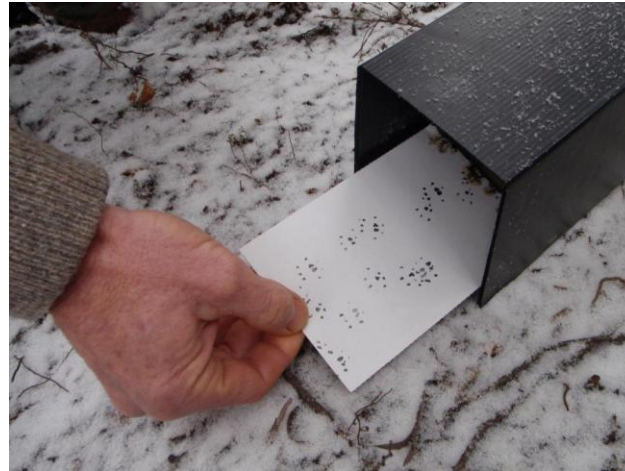




Treatment / non-treatment

Are we *really* reducing pest numbers?

e.g. compare tracking tunnel rates: @ rat control sites +
non-control sites





Results and outcome

- **Result** = e.g. rat tracking rate
- **Outcome** = biological response:
e.g. increase
robin nesting
success?



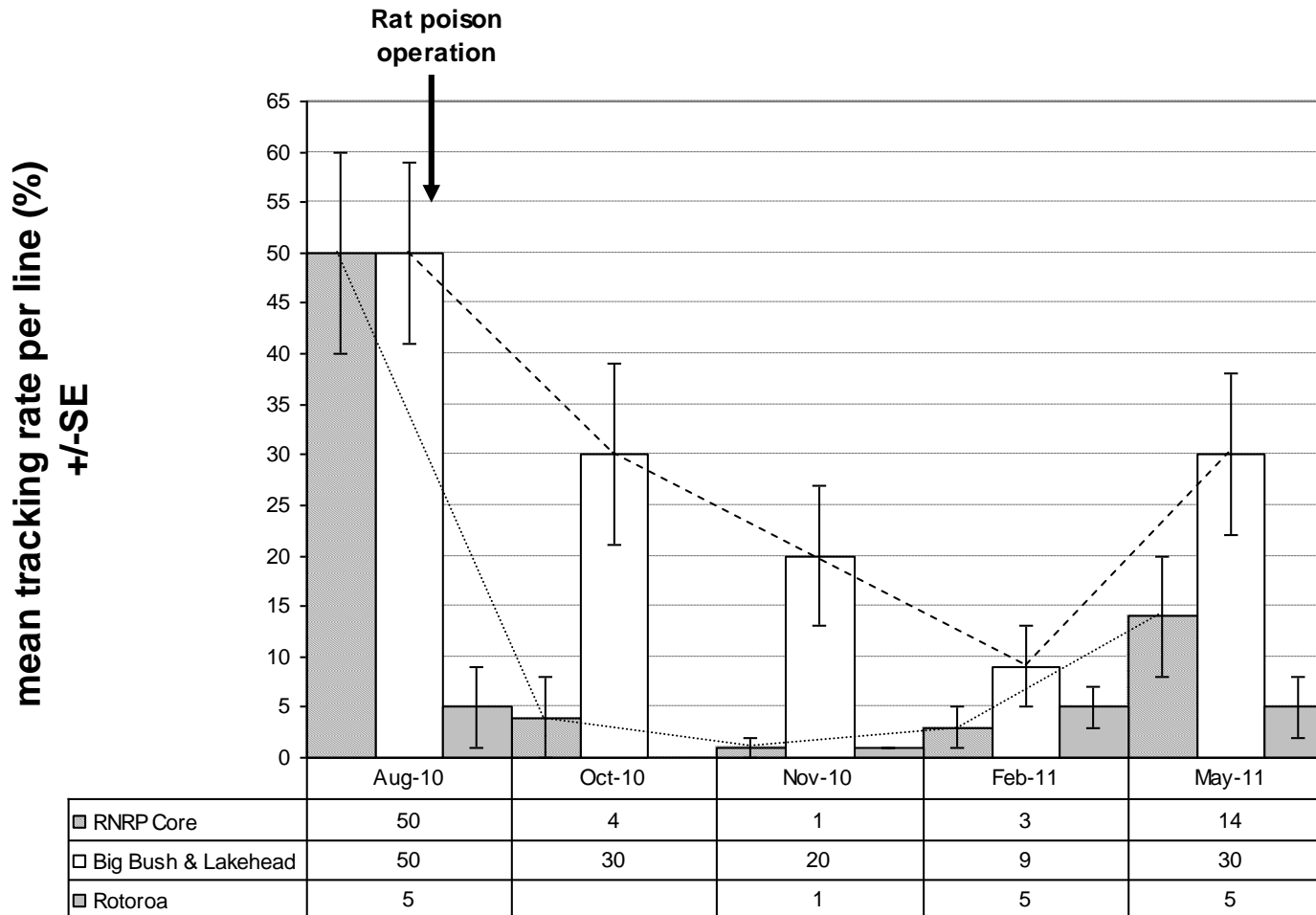


Example: Rat control

- Controlling ship rats 900ha
- Diphacinone in bait stns
- Pre-op tracking:
50%, post: 3%
- Good result - we killed lots of rats
- Outcome - biological response?
- Robin nesting success: 83% vs <20%



Rat control - Treatment vs non-treatment





Further examples

- Possum control (record possum kills)
- Results - chew tags
- Outcome - mistletoe & five-finger browse (Mistletoe incr. 30 to 300)
- Stoat control (record stoat kills)
- Results - stoat tracking rate (T & non-T)
- Outcome - 5-min bird count (T & non-T), kaka call counts





Benefits of monitoring

- Indicates biological response
 - native and introduced

e.g. poisoning rats = fewer rats
= more robins

but....

= increased mice numbers

Monitoring reveals detail



- Stoat control
= more rats
- rats tracking @ 5% or more
affects robin nesting

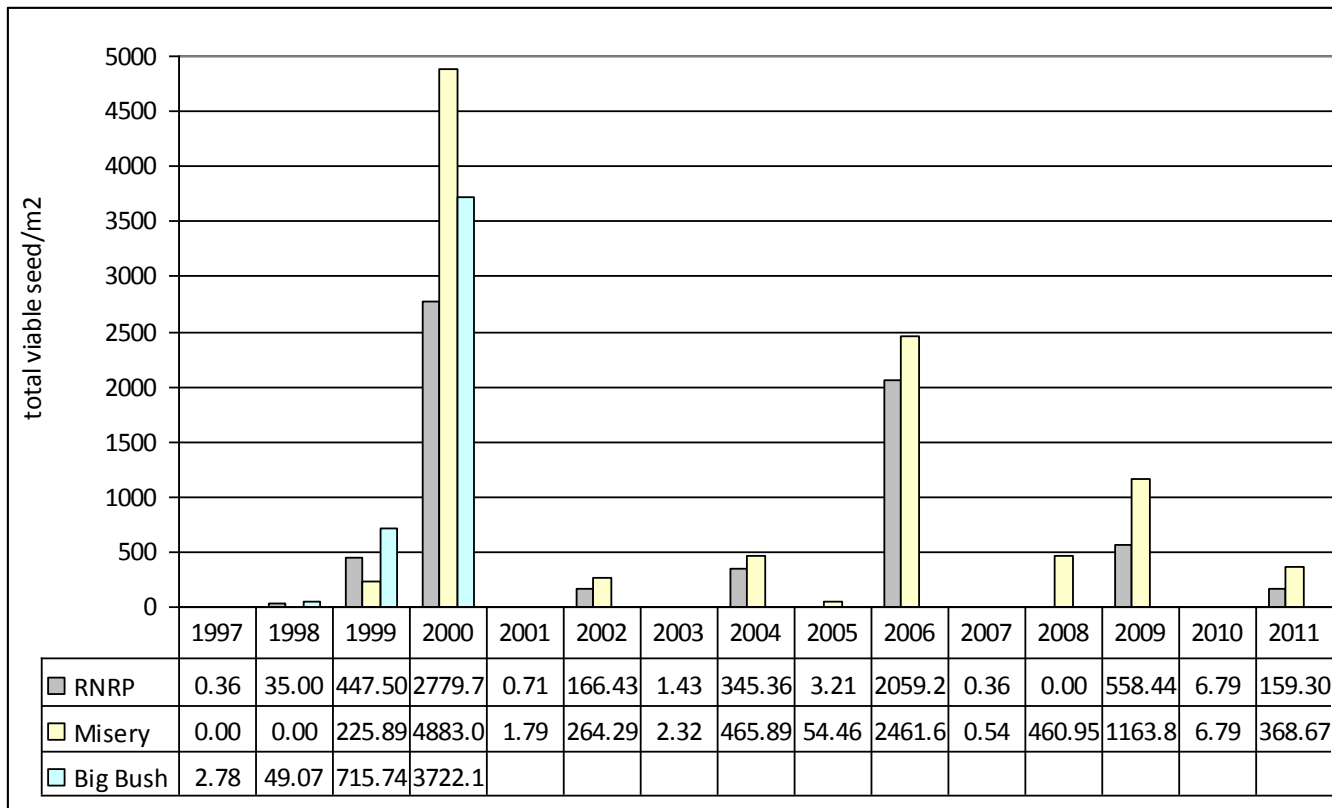


But...rats @ 5%
undetectable to observer



Other monitoring....

- Beech seed-fall and selected plant species health / browse





Wasp control research

- Can we control wasps
with less effort?
- Wasp bait stns - lines 100m apart
- Can we go further apart?
= less bait/effort





Wasp experiment

- Located wasp nests 0-500m from bait stations at 'wagon wheel' centre
- Measure nest 'traffic' before / after poison

= 80-90% traffic reduction
to 180-200m

- Result: management changed
= lines @ 400m apart
(1/4 effort and bait)

Other trials - develop 'best practice'

'Kea-proof' possum
bait stns

PAPP stoat & cat control
with baits/tunnels

Zinc phosphide rat/possum
bait



Controlling cats when ground birds (weka)
are present



Weka work...

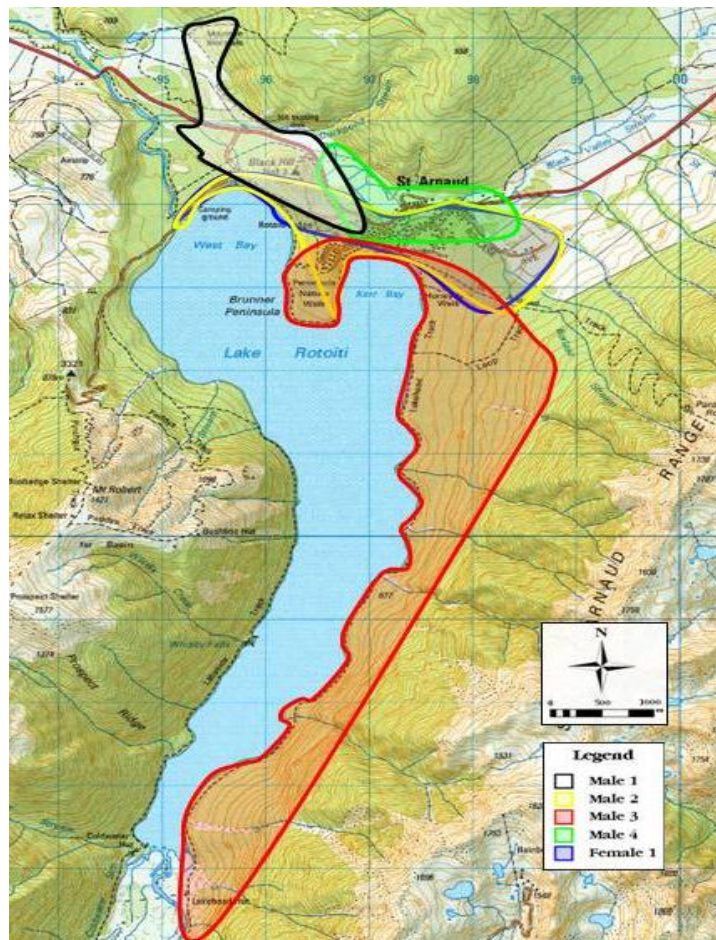


Weka radio-tracking
(past 12 months)

Home range and
habitat use

Nesting success

Low numbers -
causal factors?



Great Spotted Kiwi

- GSK re-introductions
- Adults present 5-7 yrs
- Op. Nest Egg
chick releases
- Causes for low
reproductive rate?



The future.....

Self-resetting trap (SRT)

- Henry Mk10 stoat SRT trials 2012-
- Open SRTs next to closed DOC200s (910 traps)
- Compare stoat tracking with non-treatment site and past data - should be <5% tracking





Rotoiti Mainland Island

- Improve effectiveness of current techniques
- Trial and report on new techniques
- Have to show;
 - A. Results (pest reduction) &
 - B. Outcomes (response of native spp.)
- independent of 'kill scores'