

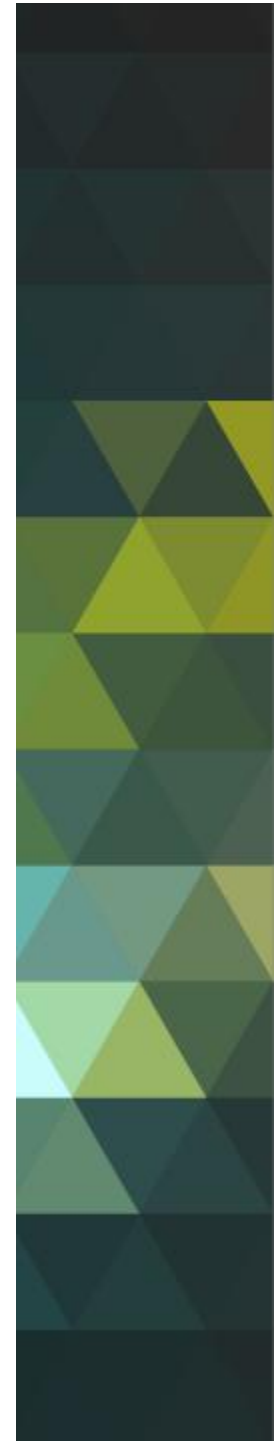
Chicken and quail smells as chemical camouflage



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LANDCARE RESEARCH
MANAAKI WHENUA



What is 'chemical camouflage'?

- Predators use cues to find prey
- Repeatedly unrewarding cues are put to the predator's 'sensory background'
 - That is, they forage efficiently (Optimal Foragers)
- This concept includes odour-driven predators
- 'Chemical camouflage' aims to hasten this process by repeatedly exposing predators to unrewarding prey odours



Why is chemical camouflage important?

- Deceiving predators into ignoring (non-primary) prey odour cues might reduce predation pressure on secondary prey
- If it does, it could be used as a tool to:
 - Protect visually-cryptic prey threatened by predation
 - Treat large areas that would be too expensive to trap
 - Treat areas where predators are native and protected, but still affect native prey

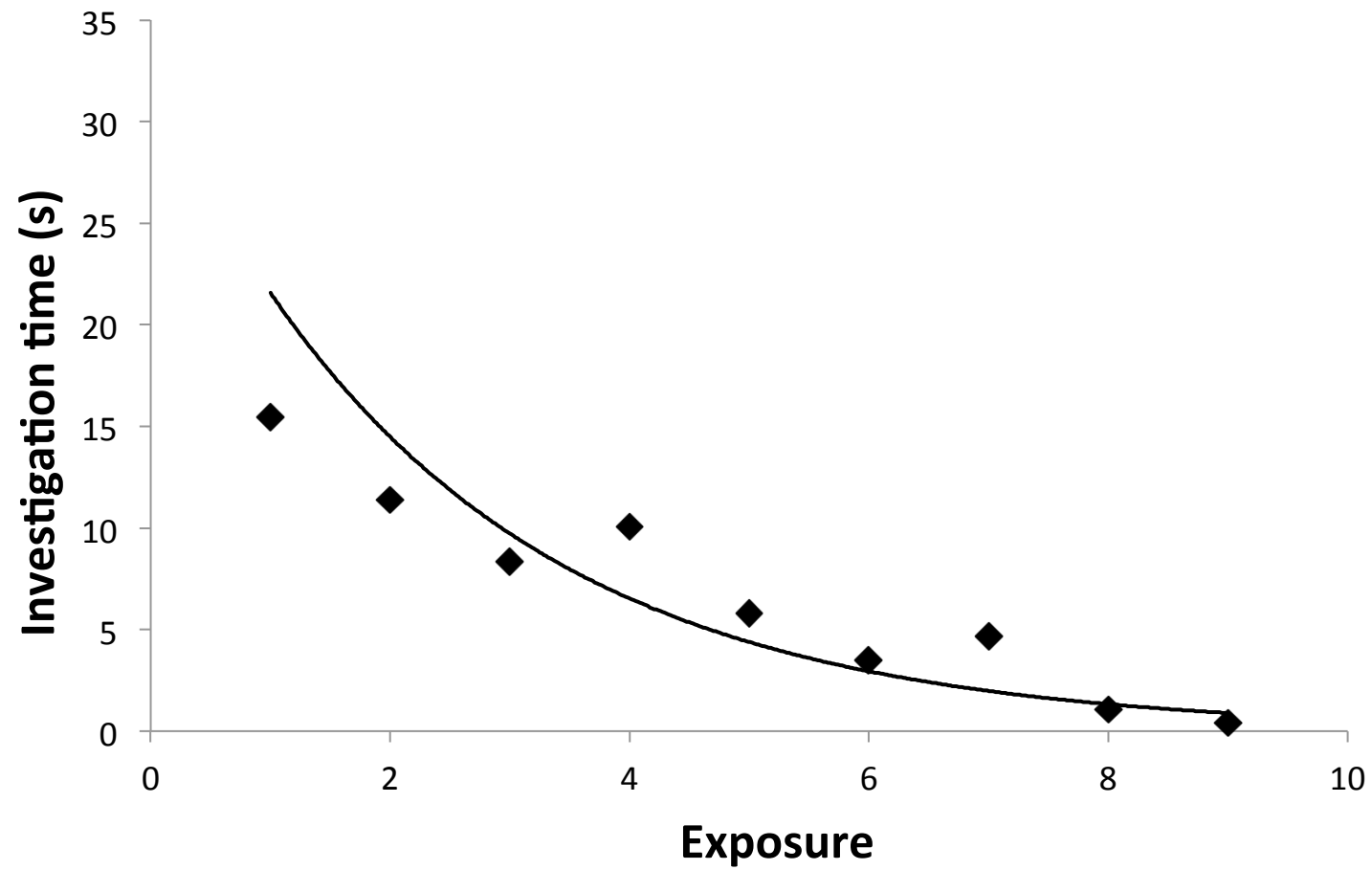


So why chicken and quail?

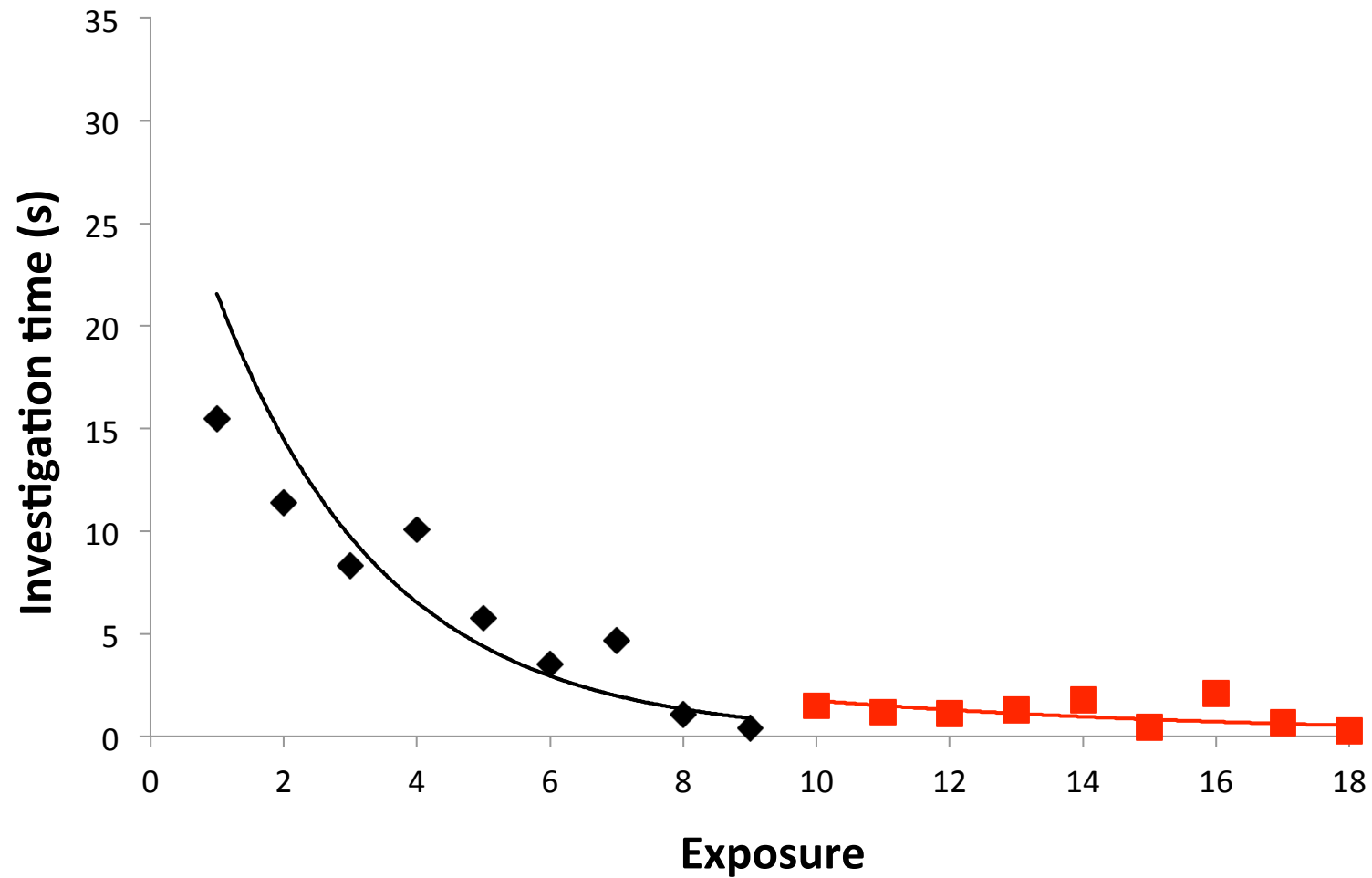
- Readily obtainable bird odours
 - Difficult to get sufficient odour from rare prey to induce chemical camouflage (unless it can be synthesised)
- Using generic bird odours to deceive generalist predators may confer benefits to several native bird species simultaneously
- This will only work if predators generalise odours
 - Inter- versus intra-Order bird odours



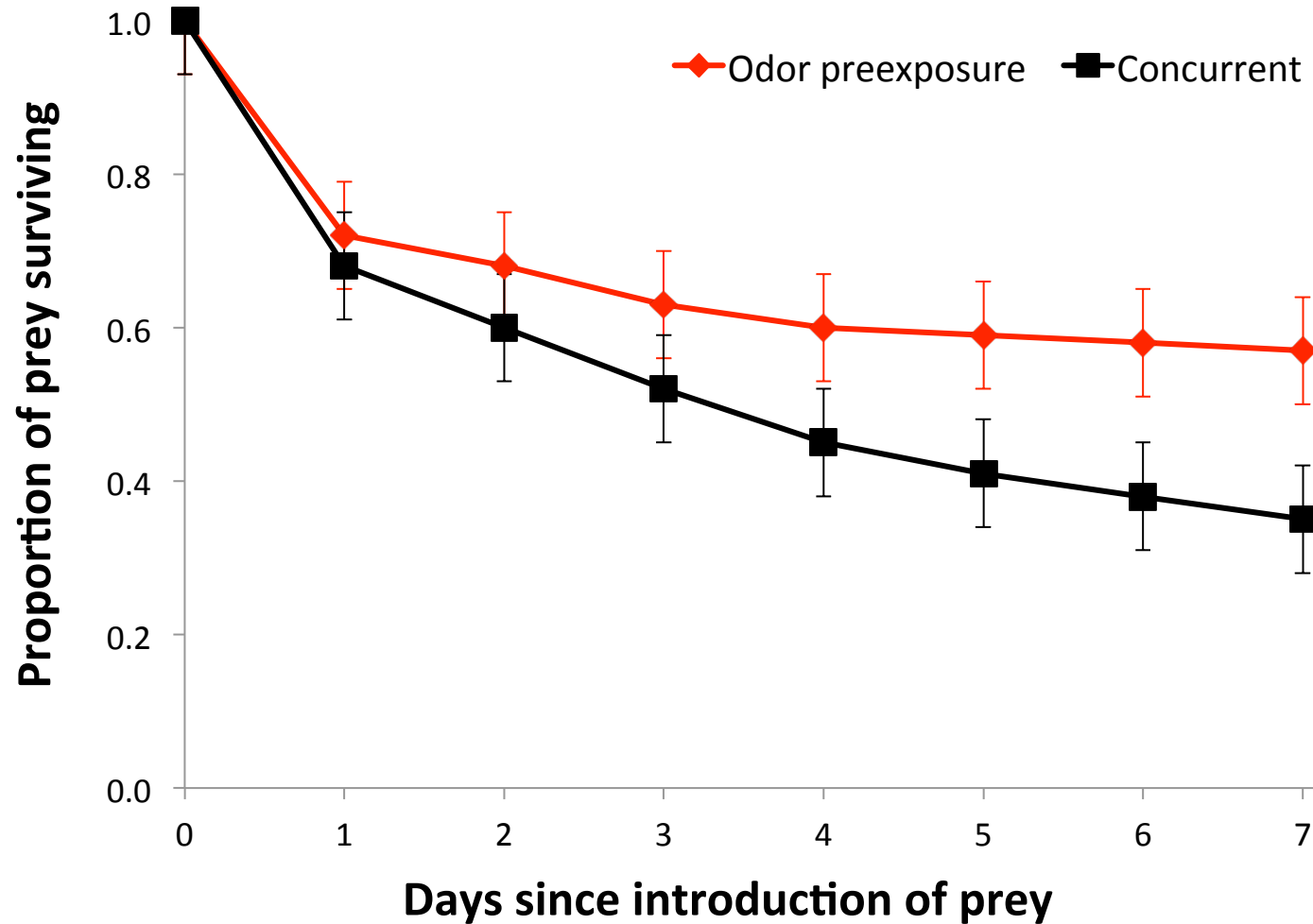
Habituation and generalisation



Habituation and generalisation



Price and Banks – Small-scale field trial and artificial nests



Trials

- Pen trials:
 - Determine habituation and generalisation to quail and black-backed gull odour, and eggs
 - Hedgehogs (completed) and ferrets (ongoing)
- Field trial:
 - Scheduled for early-August to mid-October 2016



Proposed field study system



Nationally vulnerable



Proposed field study system



- 49% of predation (eggs, nestlings and adults)



- 21% of predation (primarily eggs)



- 22% of predation (primarily eggs)

Sanders & Maloney 2002



Field study sites



Treatment sites:

Cass River delta, upper Tekapo River

Control sites:

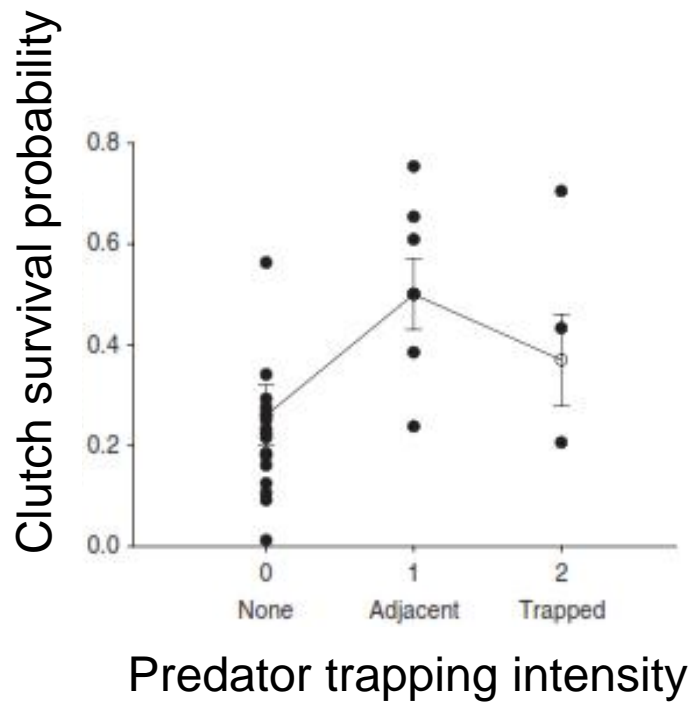
Macaulay River, lower Tekapo River

Aim to monitor c. 50–60 nests per site



Predator control (trapping)

- Clutch survival increased significantly with predator trapping

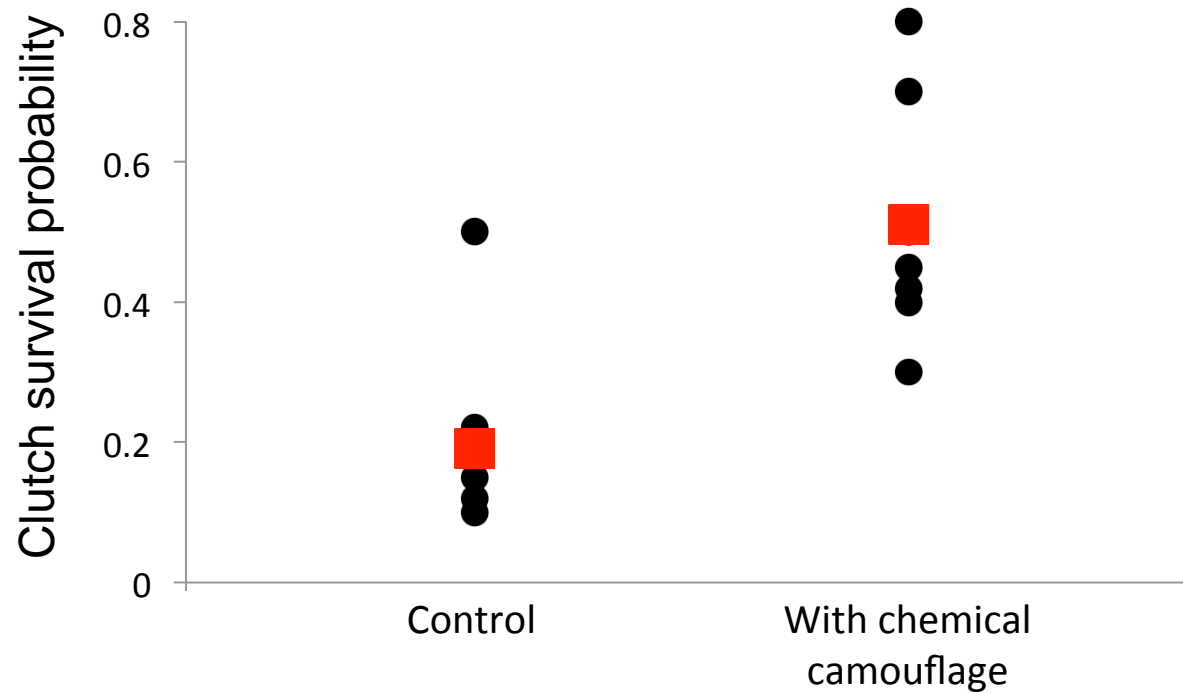


Norbury & Heyward 2008



Chemical camouflage

- Clutch survival significantly higher at chemical camouflage sites compared with control sites



Results – Odour pilot trials

- Tested neat solvent-extracted odours, Pukaki River, April 2016
- Little difference between camera traps with and without bird odour
- Limited data suggest that cats investigated quail, whereas ferrets and hedgehogs more likely to investigate black-backed gull
- Volume of odour used had little effect
- Currently trialling solvent-extracted odours in a water-repellent carrier



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