



Landcare Research
Manaaki Whenua

Camera traps as monitoring tools

Al Glen







Talk overview

- Camera trap features
- Comparing cameras with:
 - Trap catch rate
 - Tracking tunnels
 - Sniffer dogs
- Deployment methods

Trigger speed



Flash type



White flash



Infrared

- Animals can see both
- White flash may be more conspicuous

Photo or video?

- Similar success rates
- Video files 10.4 Mb, photos <1 Mb
- Time consuming to review video files
- Video useful for recording behaviour



Detection zone



Bushnell Trophy Cam HD Aggressor Red Glow

Detection Angle: 45.2°
Field of View: 34.7°
Detection Range: 110 ft.



What's the best camera trap model?

- It depends!



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Talk to an Expert: **1-800-791-0660** Mon-Fri 9-5 EST



BEST SELLING TRAIL CAMERAS



BROWNING STRIKE FORCE ELITE

★★★★☆ 28 Reviews
From \$139.95



BUSHNELL AGGRESSOR RED-GLOW

★★★★☆ 13 Reviews
From \$149.95 ~~\$179.95~~



SPYPOINT FORCE 11D

★★★★☆ 4 Reviews
From \$149.95



BUSHNELL AGGRESSOR WIRELESS

★★★★☆ 1 Review
\$349.95 ~~\$399.95~~

Cameras or kill traps?



Macraes Flat

Tasman Valley





RESEARCH ARTICLE

Comparison of camera traps and kill traps for detecting mammalian predators: a field trial

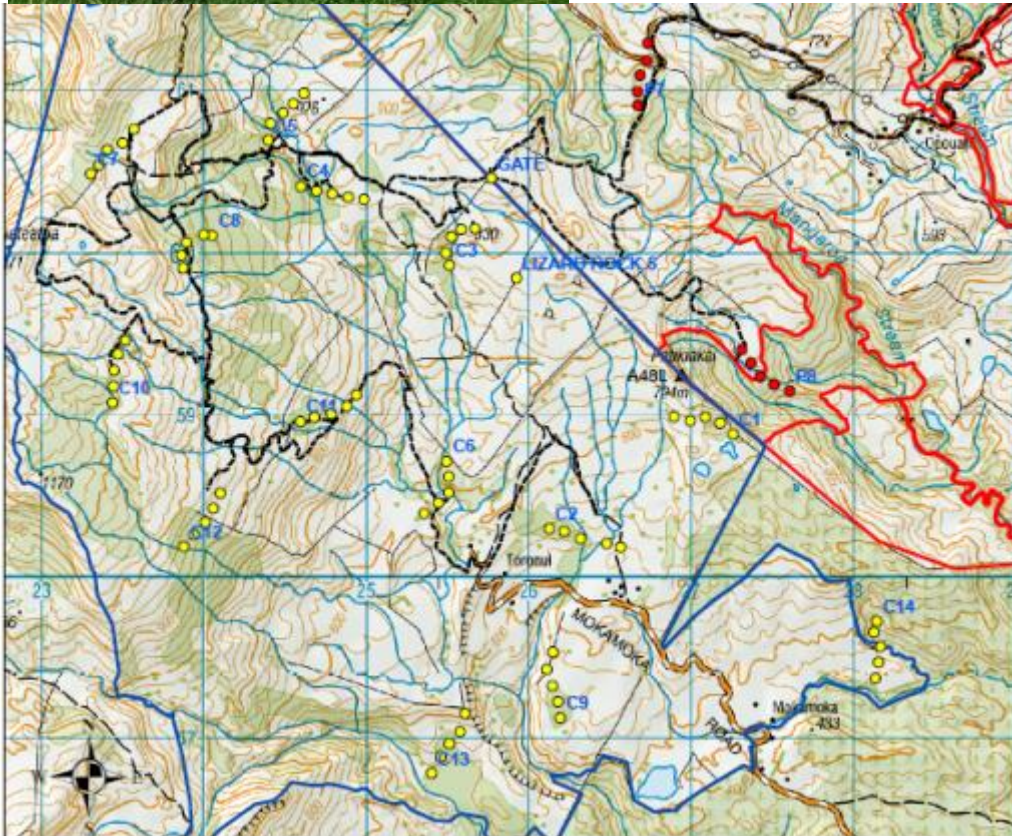
AS Glen*, B Warburton, J Cruz and M Coleman

Table 1 Capture rates (%) for each species at Macraes Flat and Tasman Valley: cameras cf. kill traps.

| Species | Macraes Flat | | Tasman Valley | |
|----------|--------------|------------|---------------|------------|
| | Camera traps | Kill traps | Camera traps | Kill traps |
| Stoat | 0 | 0.03 | 0.1 | 0.04 |
| Cat | 2.0 | 0.1 | 0.5 | 0.03 |
| Hedgehog | 0.7 | 0.1 | 0 | 0 |
| Rabbit | 9.6 | 0.01 | 12.2 | 0 |
| Possum | 0 | 0 | 4.2 | 0.01 |
| Unknown | 1.0 | 0 | 11.9 | 0 |



Cameras or tracking tunnels?



- 14 lines of tracking tunnels
 - 7 cats, no stoats
- 20 pairs of camera traps
 - 79 cats, 45 stoats

Cameras or sniffer dogs?



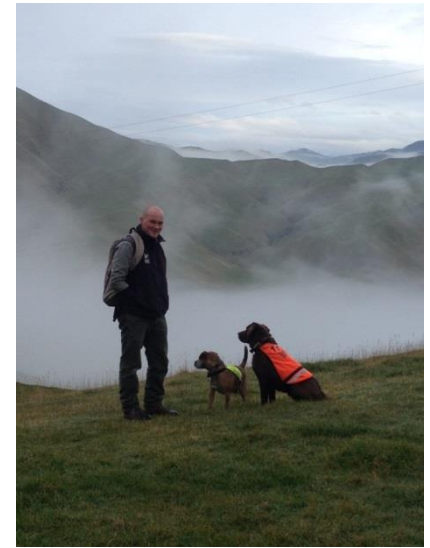
- Detection probability: 0.54
- Time to detection: 9–25 mins
- Cost NZ \$4820



- Detection probability: 0.45
- Time to detection: 1–3 days
- Cost NZ \$5100



Pros & cons



- All weather
- Interference by livestock
- High setup cost
- Detection tool only
- Affected by rain & wind
- Unaffected by livestock
- Available for hire
- Useful for 'mopping up'

But most importantly of all...

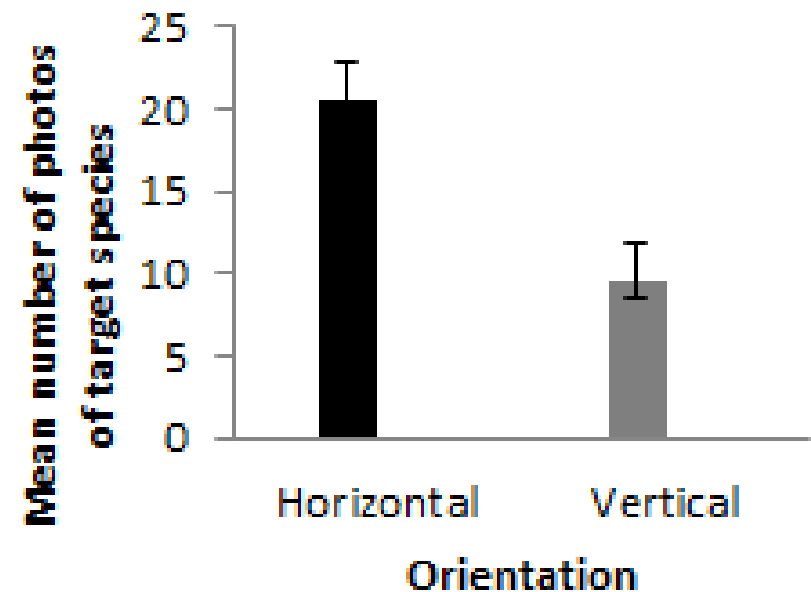
You can't pat a camera



Horizontal or vertical?

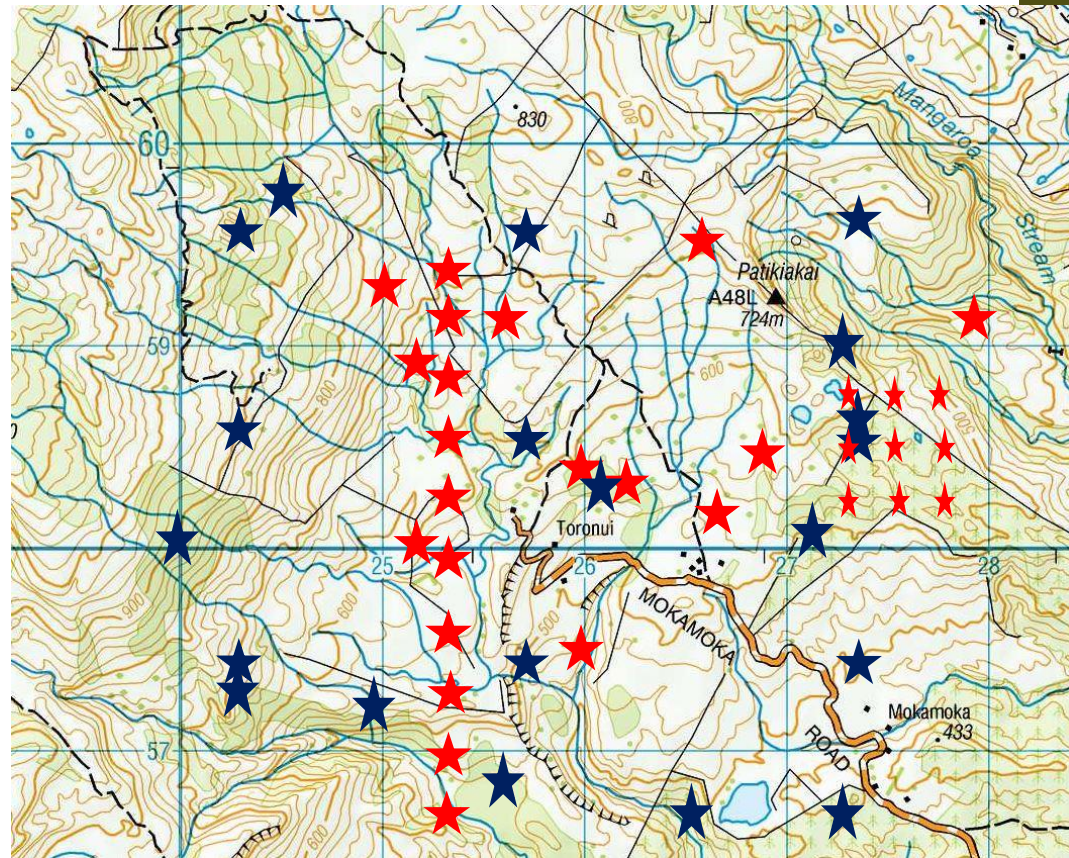


- Best choice depends on:
 - Size and behaviour of target species
 - Study aims

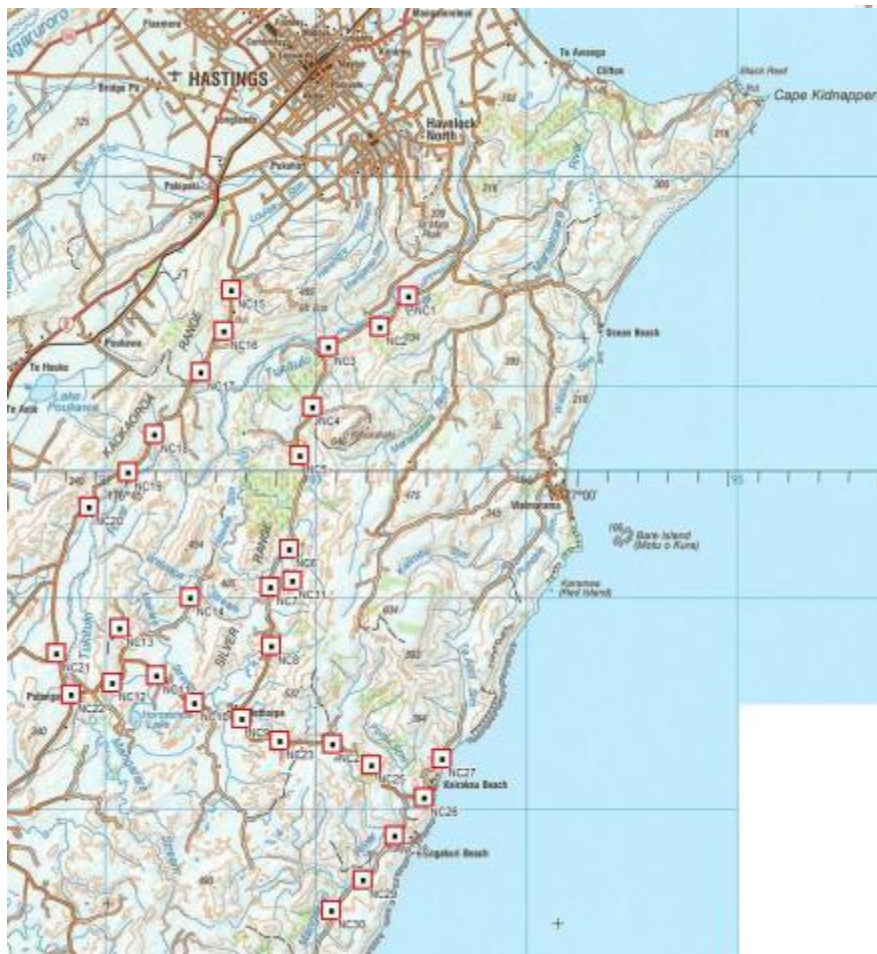


Camera deployment

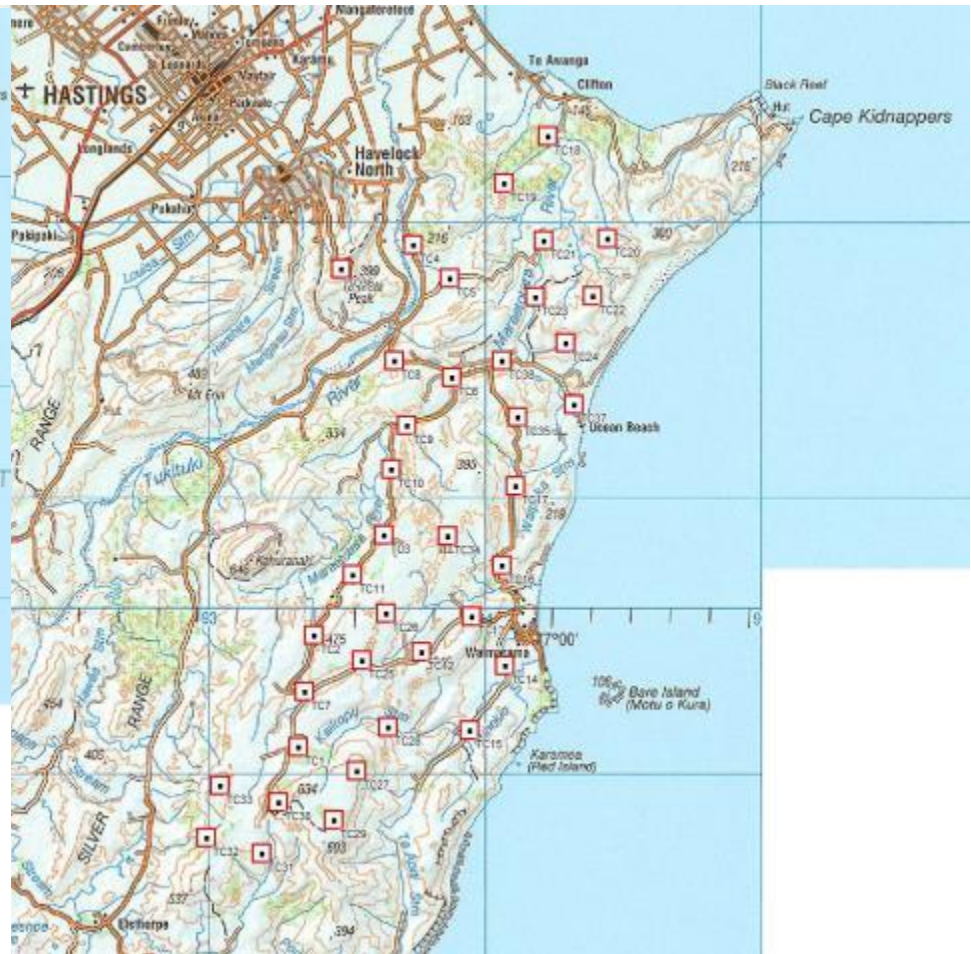
- Random / targeted
- Transects / grids
- How far apart?
 - Target species
 - Aims



Wide-scale monitoring – Hawke's Bay



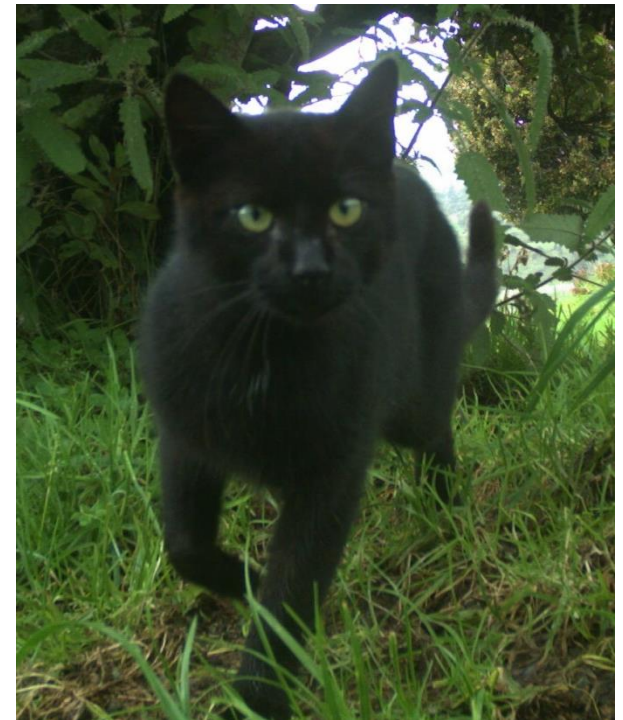
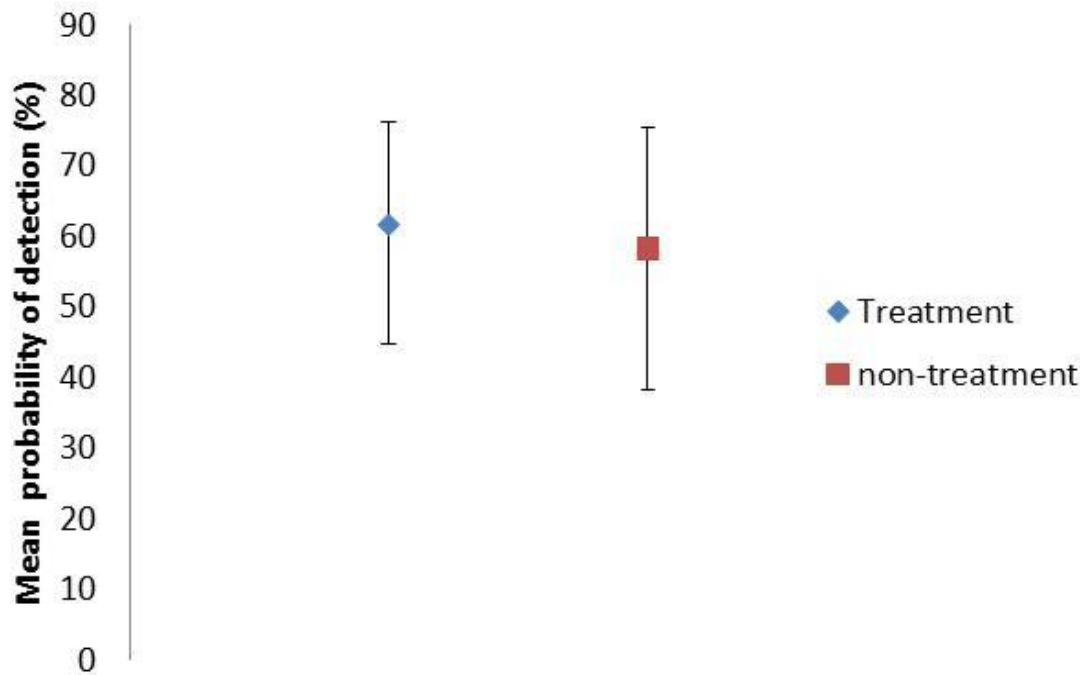
Non-treatment area
31 cameras



Predator-removal area
37 cameras

Initial results

- 'Baseline' monitoring November 2015
- Estimated probability of detection for cats, stoats, ferrets, rodents, hedgehogs



Conclusions

- Highly effective for a broad range of species
- More sensitive than other common methods
- Camera features and methods depend on:
 - Target species
 - Aims (e.g. monitoring abundance, behaviour)





Any questions?

Thanks to:

- Bruce Warburton
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