



**Landcare Research**  
**Manaaki Whenua**

# Optimising Trapping Effort

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Research contracted by Animal Health Board



# Outline

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- Background (Operational questions)
  - Issue 1: how many trap nights?
  - Issue 2: how effective is perimeter control?
- Field trials (methods and results)
- Conclusions

# Background

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- AHB operational questions:
  1. If you want to trap at least 80% of possums, how many nights should you run traps for? Each additional night has additional costs.
  2. Can prefeeding decrease the number of nights needed to catch the equivalent proportion of possums.
  3. Can the distance over which perimeter trapping is effective, be increased by prefeeding?

# How many trap nights...1

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## Methods:

- Only 1 replicate completed so far.
- Four areas, each with three lines of about 80-100 sites (Trap or ChewCards).
- Each area assigned to one of four treatments:
  - T1: Trapping only.
  - T2: Chewcards for 7 nights, then Bait Stations at possum detection sites (7 nights) then trapping (a handful of baits maintained in BSs).
  - T3: ChewCards for 7 nights then trapping at positive sites.
  - T4: Trapping with additional cereal pellets placed at trap site.

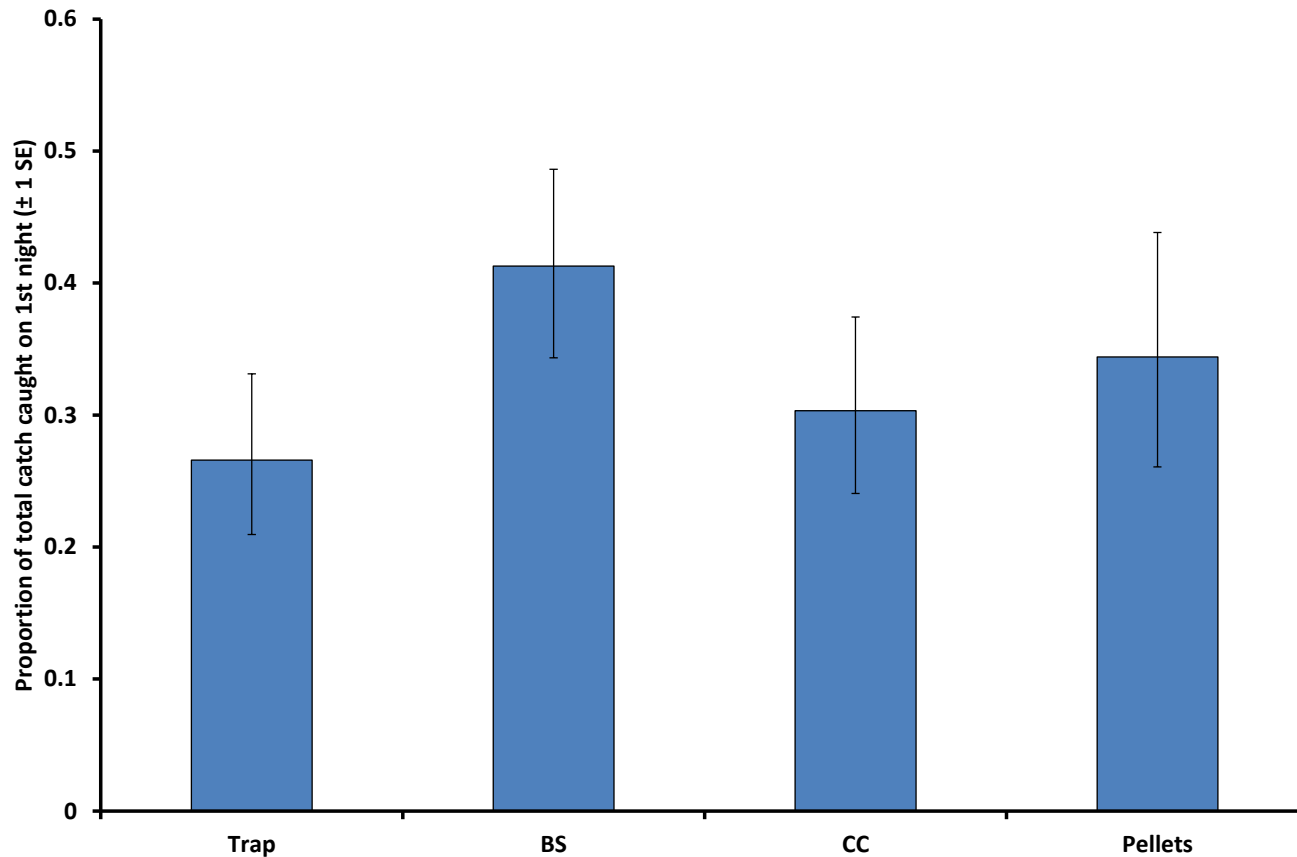
# How many trap nights...2

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- All lines trapped for 10 nights (NPCA protocol)
- Expected T2 (Bait Stations) to catch a higher proportion of total possums on the first night, and catch 80% of total catch quicker than other treatments.

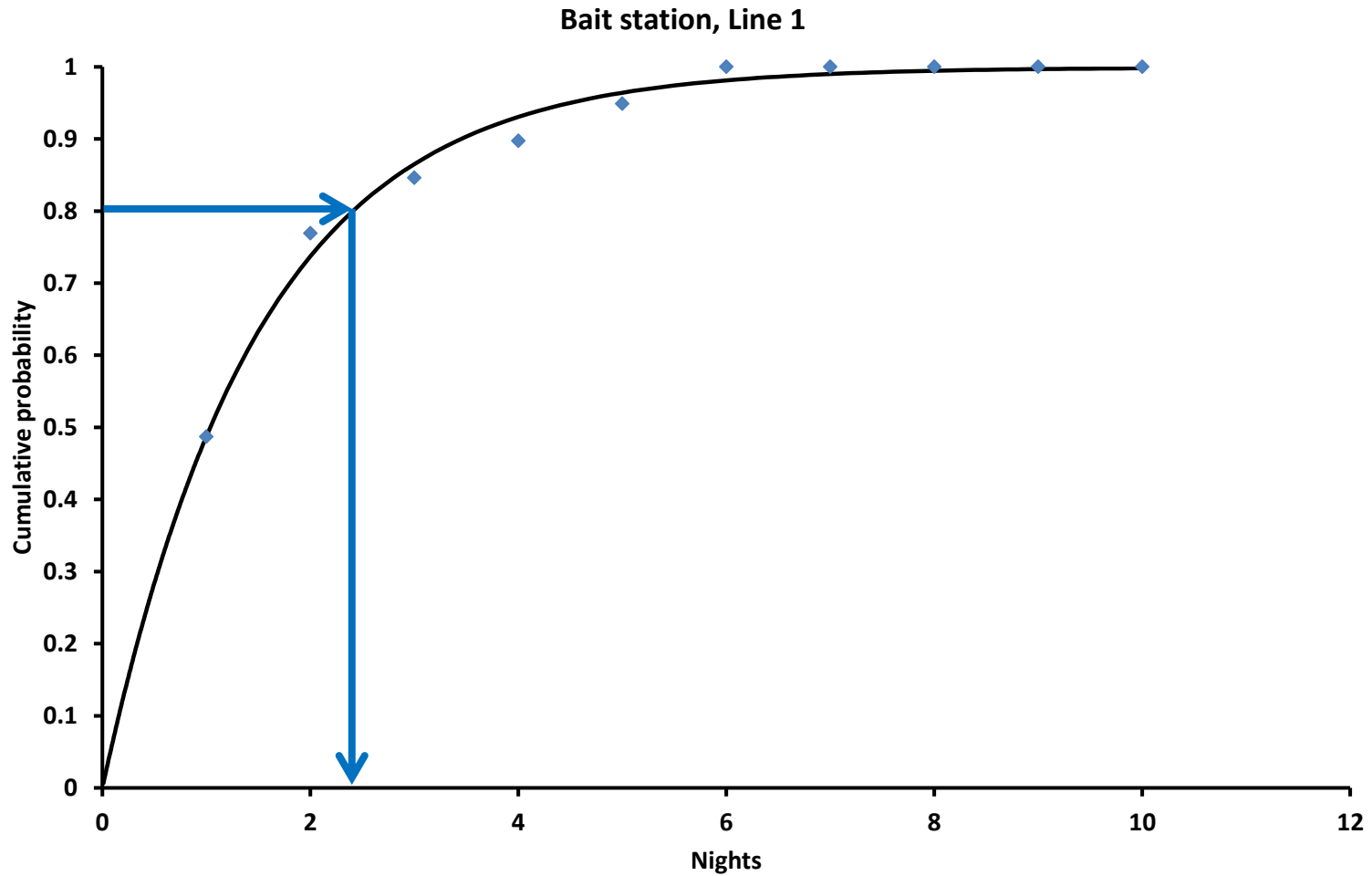
# Proportion caught on first night

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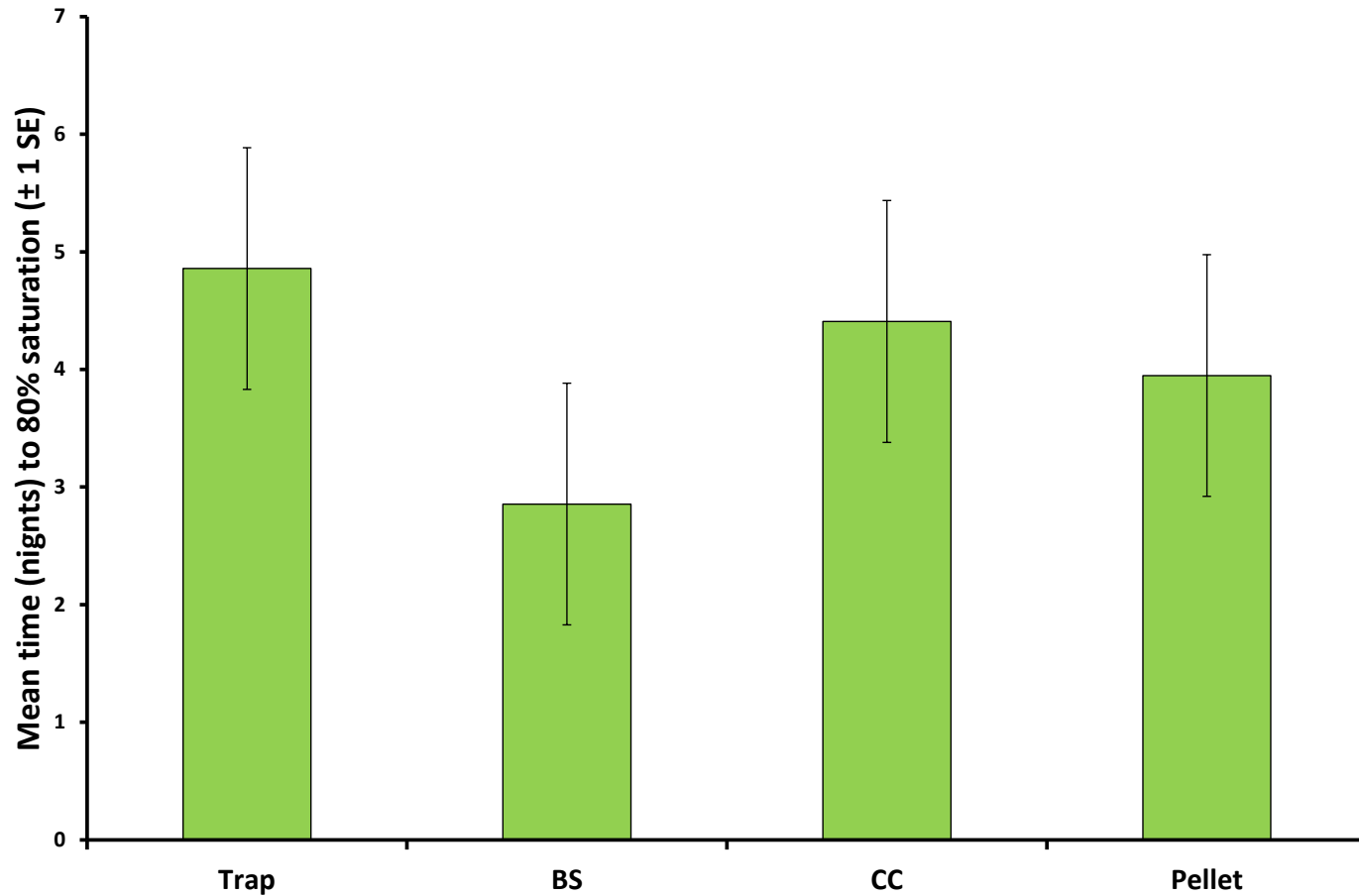
P = 0.5, NS

# Cumulative catch



# Time to catch 80%

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P = 0.58, NS



# Conclusions

## How many trap nights?

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- Only one replicate completed so statistical power low.
- Expected trend (i.e. BS catch more quickly) indicated.
- Is it cost-effective to use BS? We haven't analysed the comparative costs of each of the treatments yet.
- Excluding BS, to catch 80% of possums about a line needs 4 - 5 nights.

# Perimeter control... 1

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- Operational issue:
  - If we have a gully or an isolated patch of forest can we achieve effective control by just trapping the perimeter?
  - If we prefeed the perimeter, does it increase the distance possums are controlled back into the forest?

# Perimeter control...2

## Methods

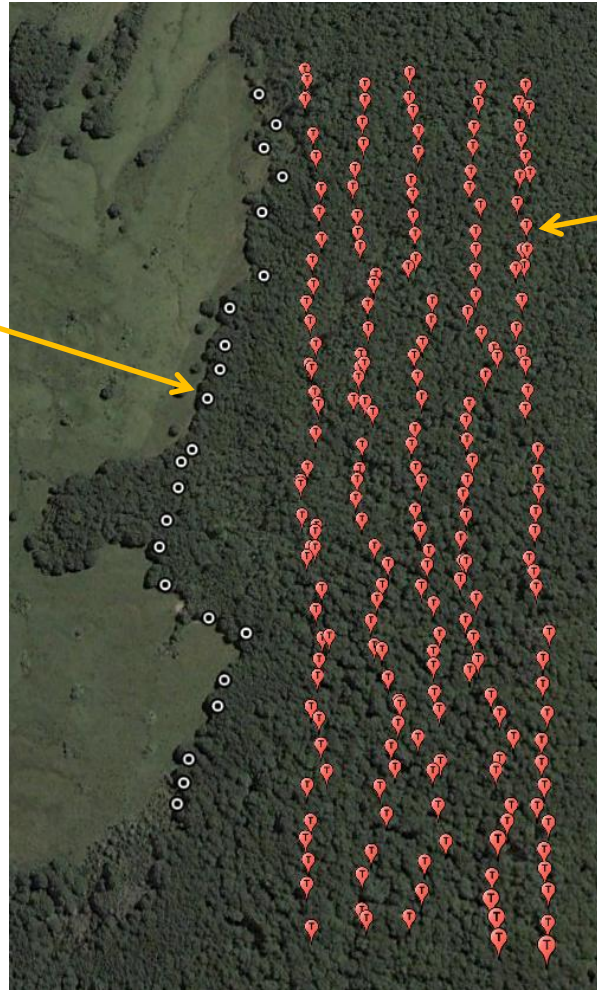
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- Possums ear-tagged at increasing distance into forest from perimeter/margin (50 – 250m)
- Bait stations established along forest margin at 30-m spacing (2-g prefeed pellets)
- BS left for 7 nights
- Four leghold traps set for 4 nights at each station
- BS then refilled for a further 14 nights (replenished after 7 nights)
- Trapping repeated

# One trial site (Maruia)

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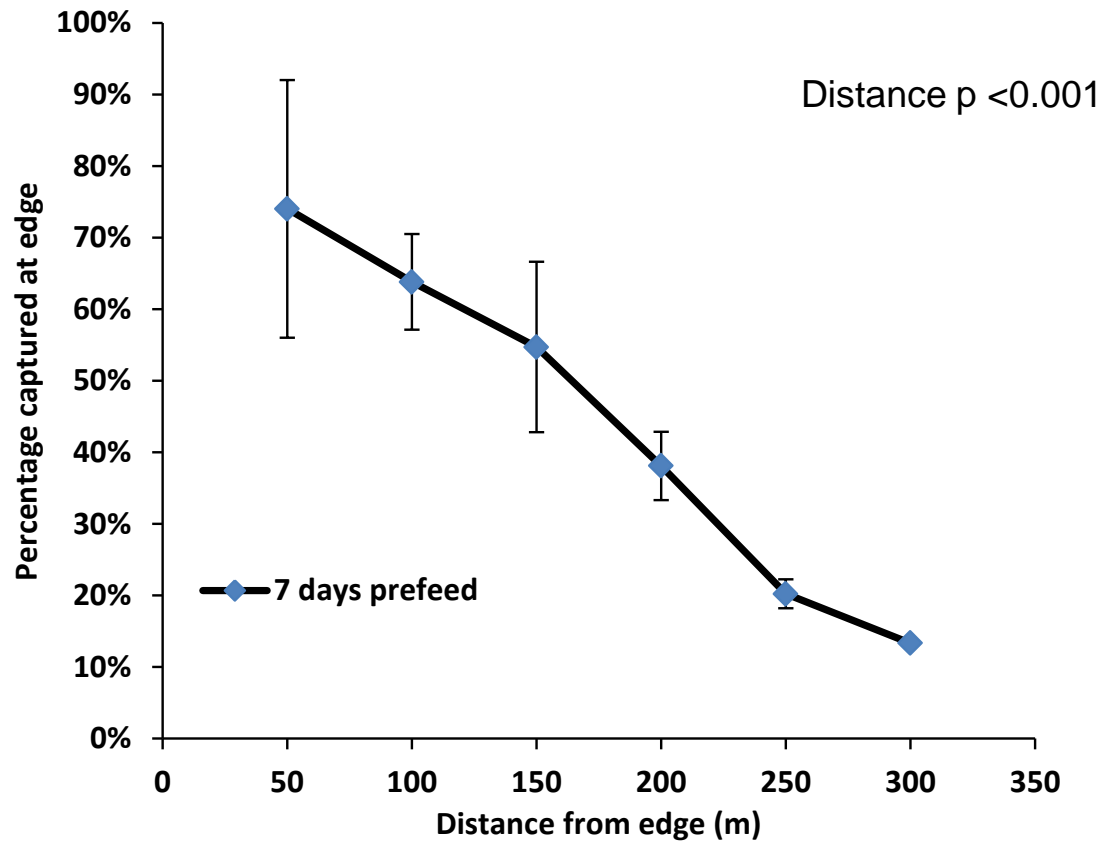
**Perimeter  
bait stations  
30-m spacing**



**Traps**

# Percentage Recaptures

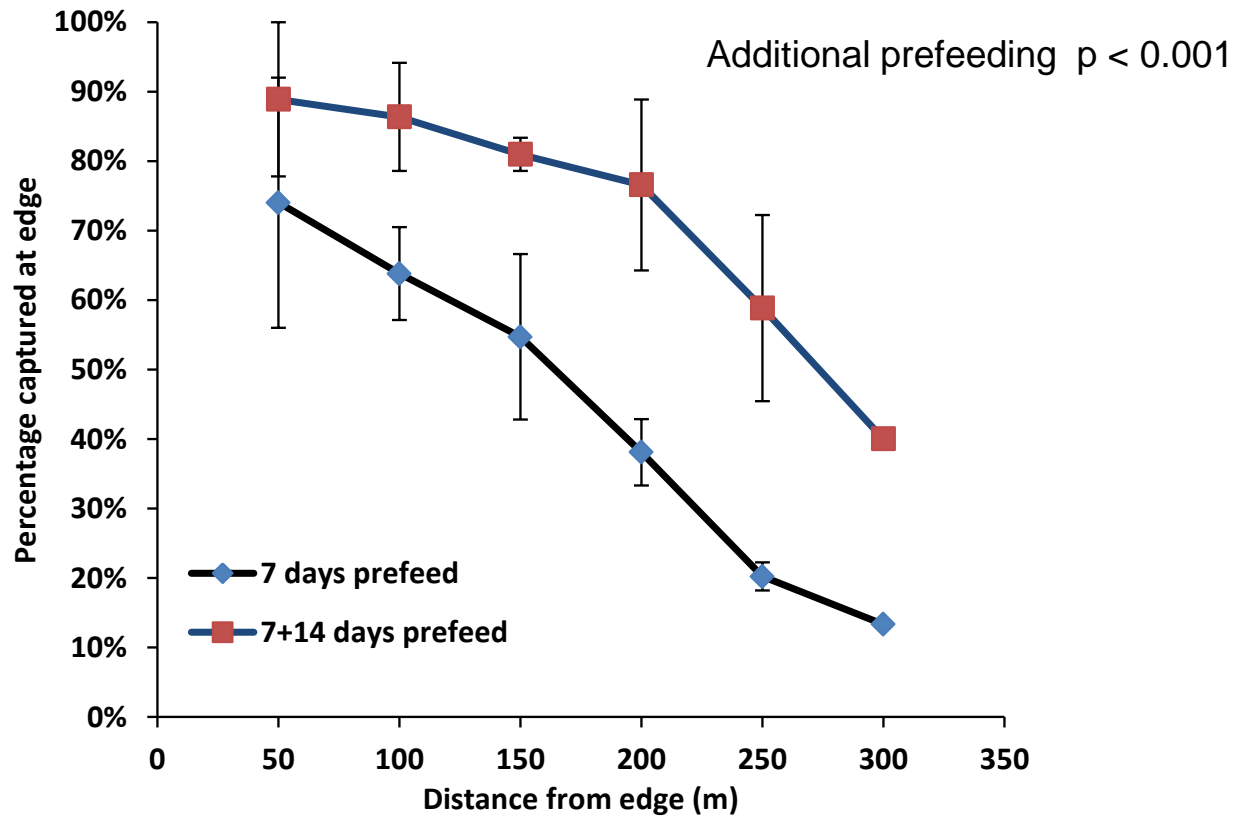
After 7 days of prefeeding



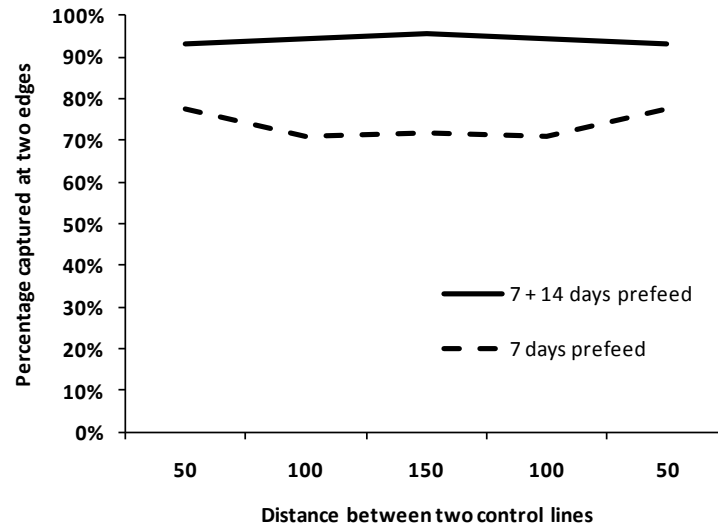
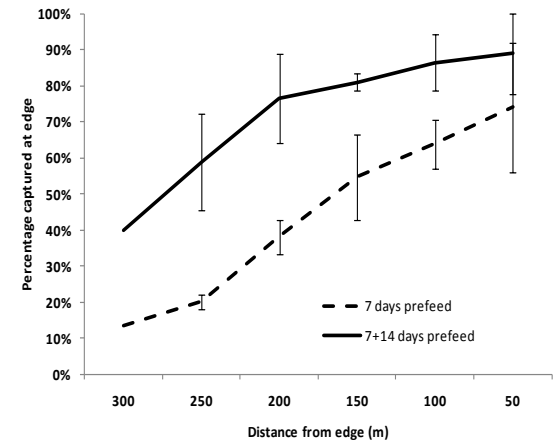
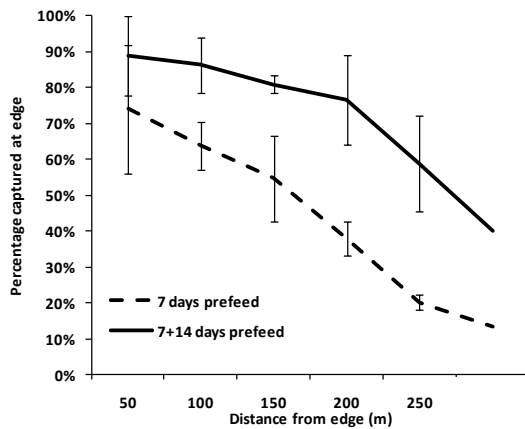
c. 20 possums ear-tagged on each line

# Percentage Recaptures

After additional 14 days of prefeeding



# Double sided perimeter control



# Conclusions

## Perimeter control

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- Effective distance of perimeter control depends on duration of prefeeding.
- Perimeter control of difficult-to-access areas OK if <200m from edge to centre, and adequate prefeeding used.
- Even with extended prefeeding in bait stations, effective control (>80%) does not extend much beyond 200m.
- The effective distance of perimeter control lines is probably greater than the effective distance of within-forest lines, because possums with access to pasture typically have elongated home ranges.



# Acknowledgments

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