

Exploiting animal behaviour for wildlife management

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Outline of talk

Predator competition

Predator competition in New Zealand

- Searching for evidence of fear (pen)
- Responses to predator odour (pen)
- Exploiting responses to predator odour (field)

Behaviour in wildlife management

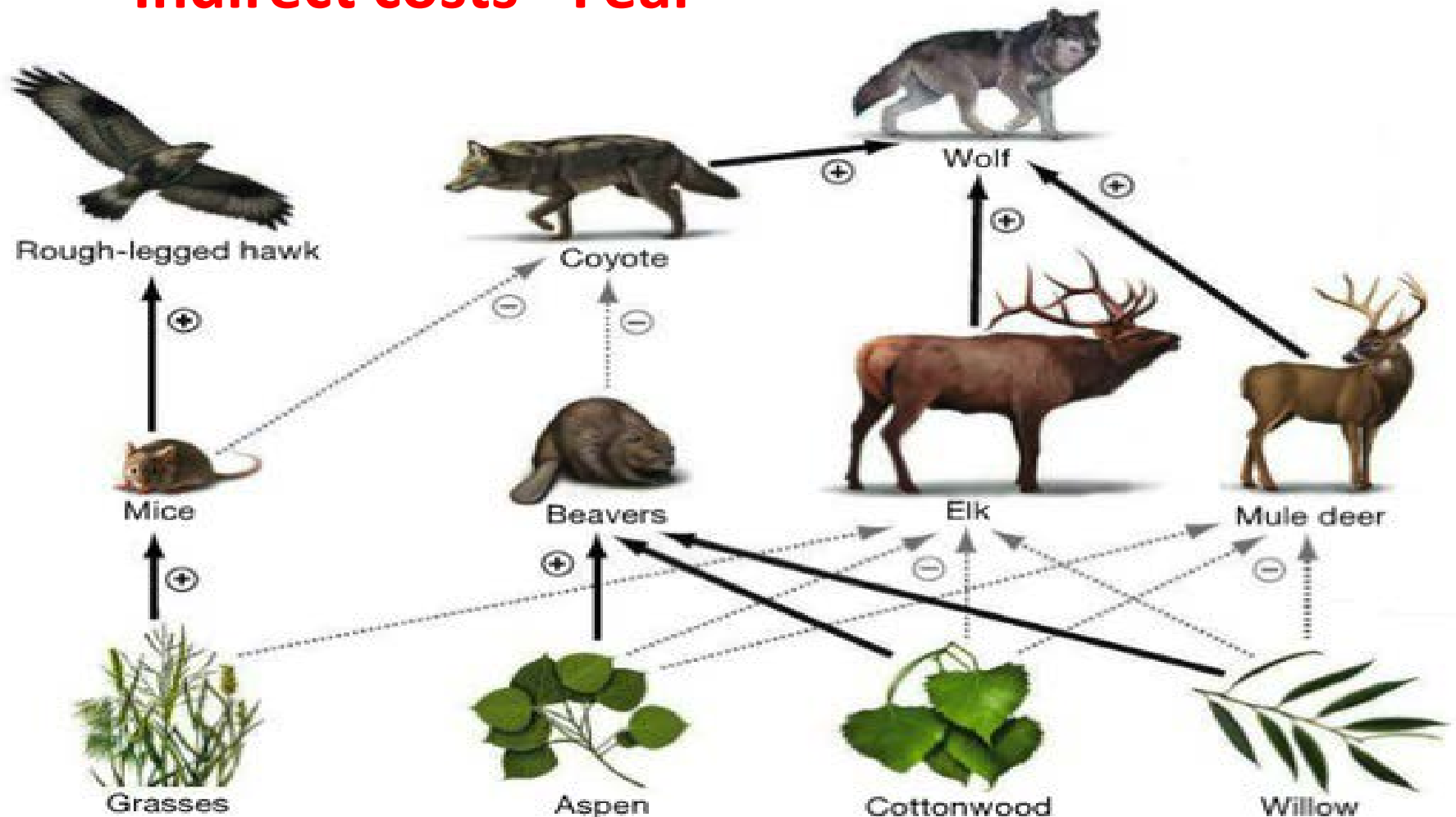
Future direction

Predator competition



Predator competition

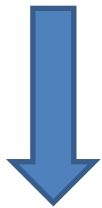
Indirect costs - Fear



New Zealand's invasive carnivores



Feral Cat
(*Felis catus*)
3,000g



Stoat (*Mustela erminea*)

250g



Ferret
(*Mustela furo*)
1,000g

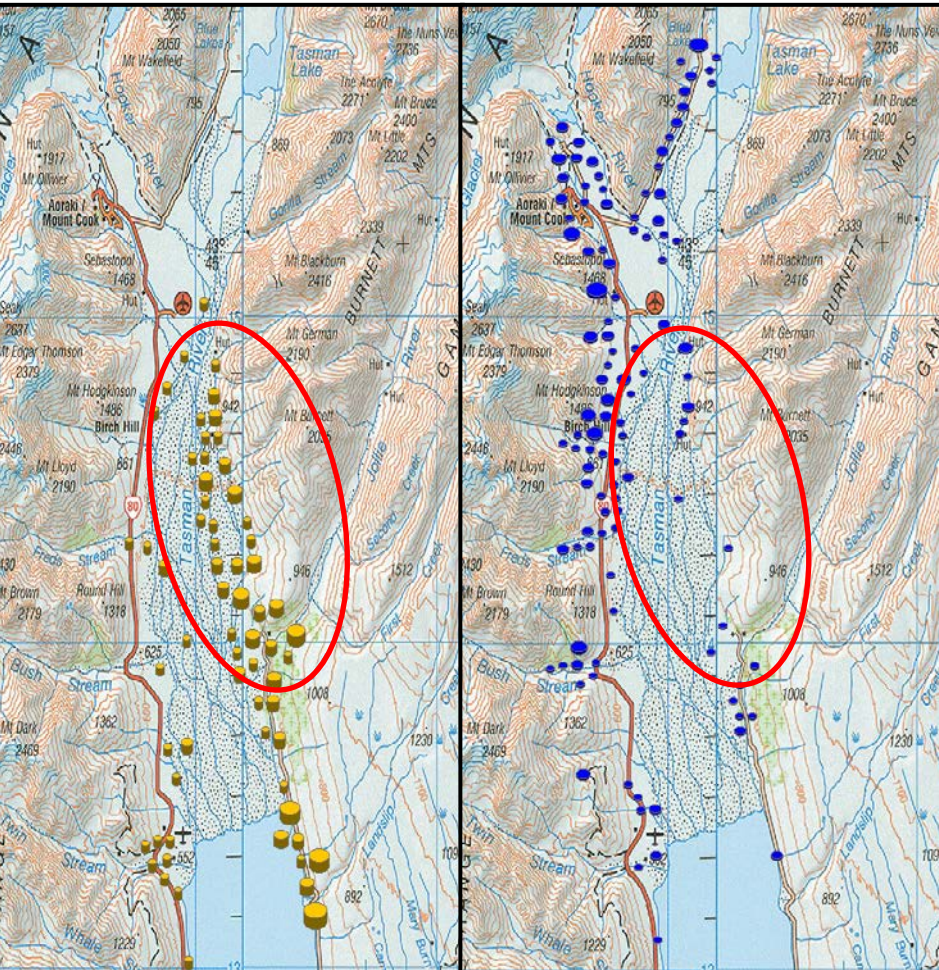


Is there evidence of competition in the New Zealand?

2005

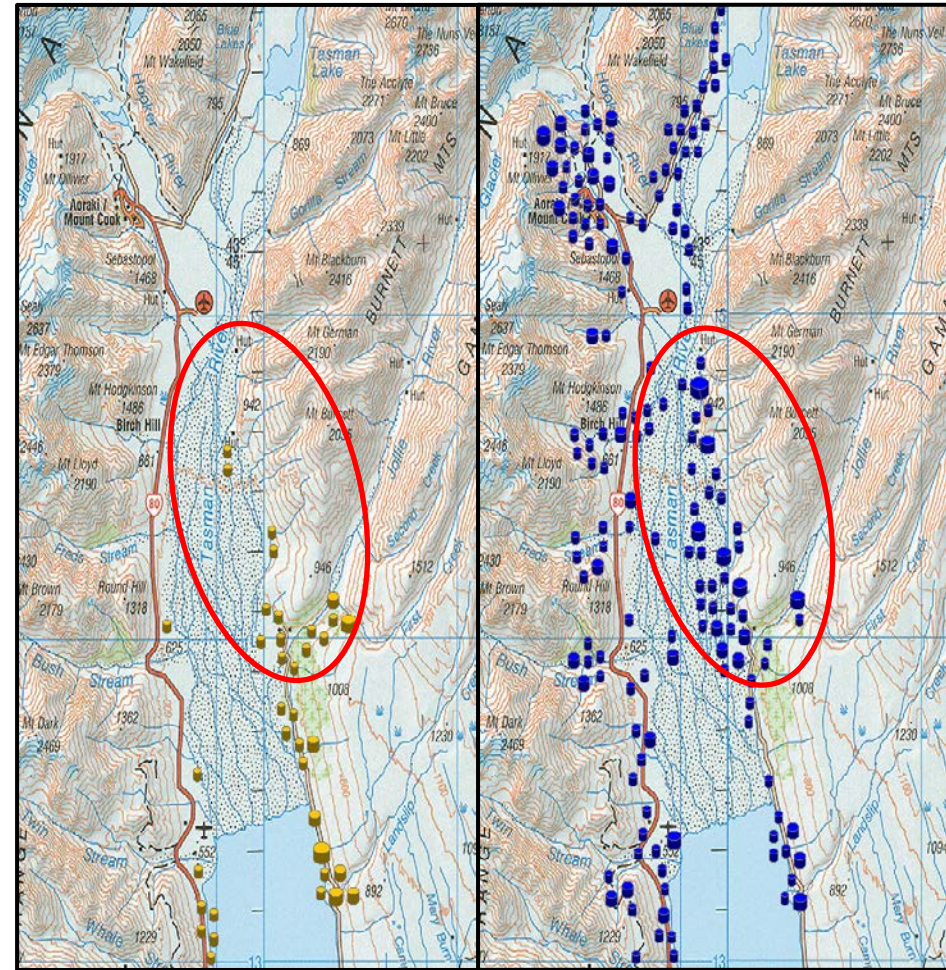
Tasman Valley

2009



Ferret

Stoat



Ferret

Stoat

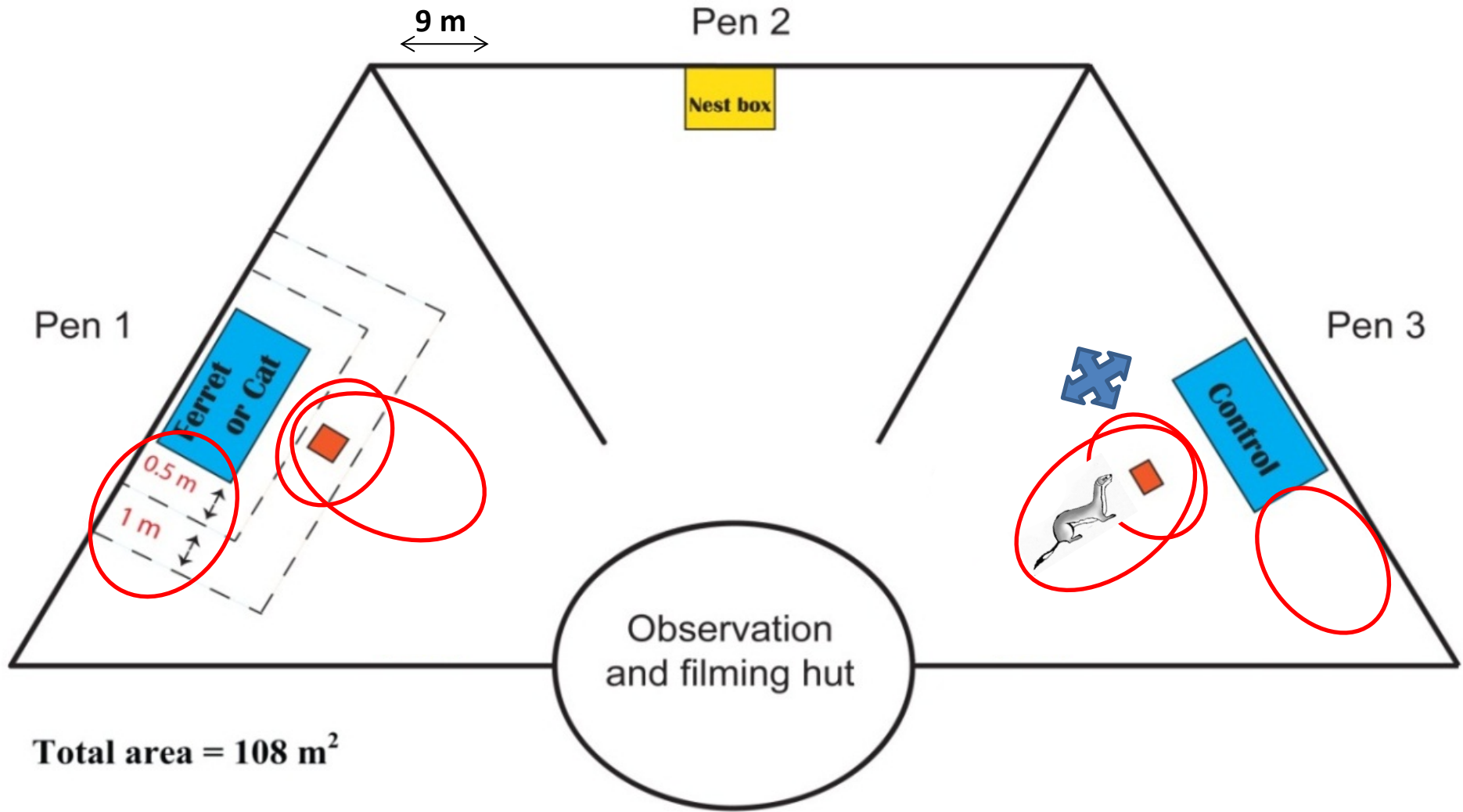
Research question

Will stoats display fear in close proximity to a cat or ferret?

Behavioural measures of fear

- Food eaten
- Vigilance
- Avoidance

Predator interactions



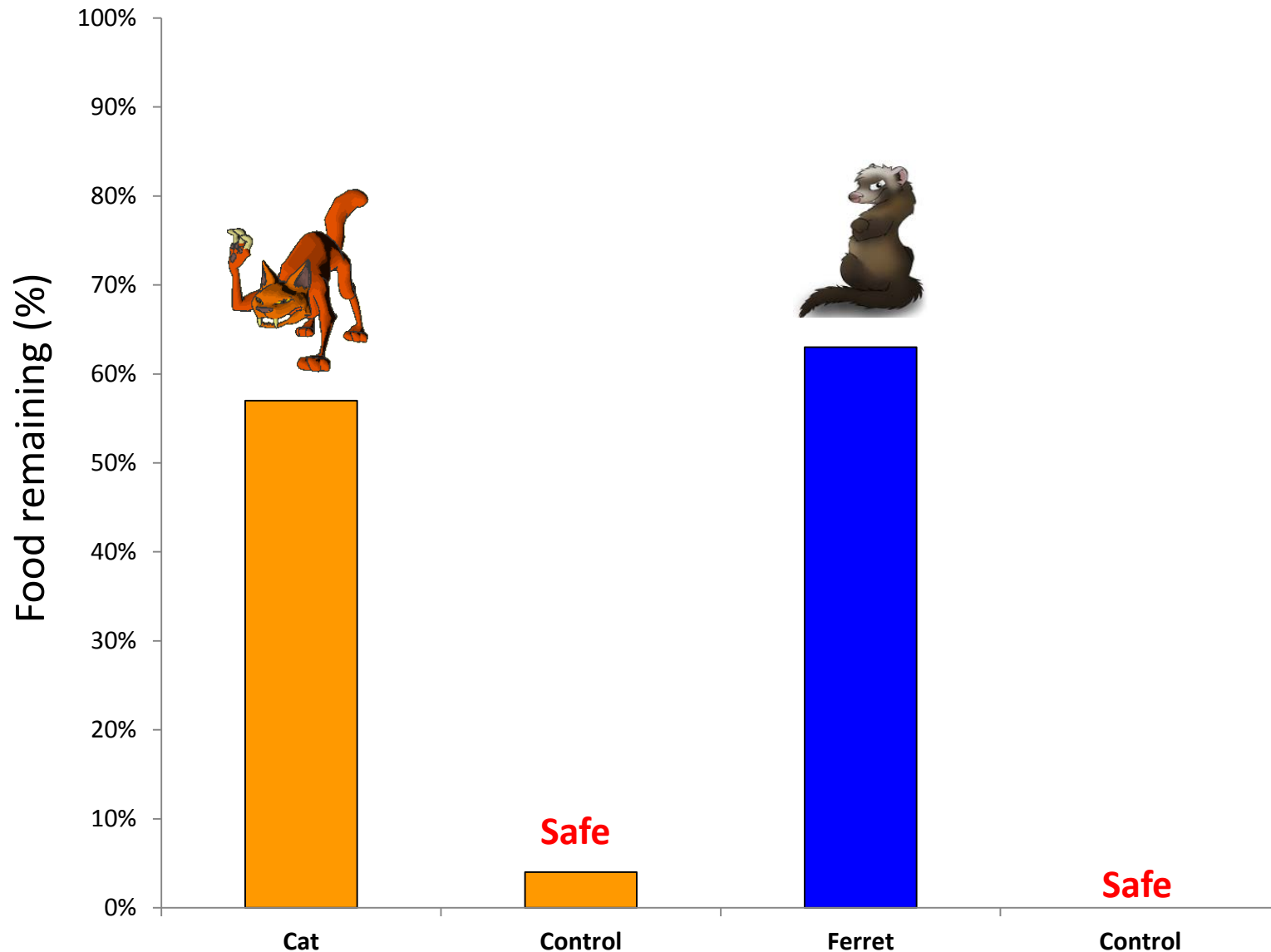
Measures

1. Food consumption
2. Avoidance
3. Vigilance



GV-1248 Camera 6
5/10/2012 04:17:44

Results – Food remaining



Predator interactions

Foraging Ermine Avoid Risk

- Reduction in food harvested ✓
- Increase in avoidance ✓
- Increase in vigilance ✓



Fear can be exploited!



Will dominant predator odour influence stoat foraging behaviour?



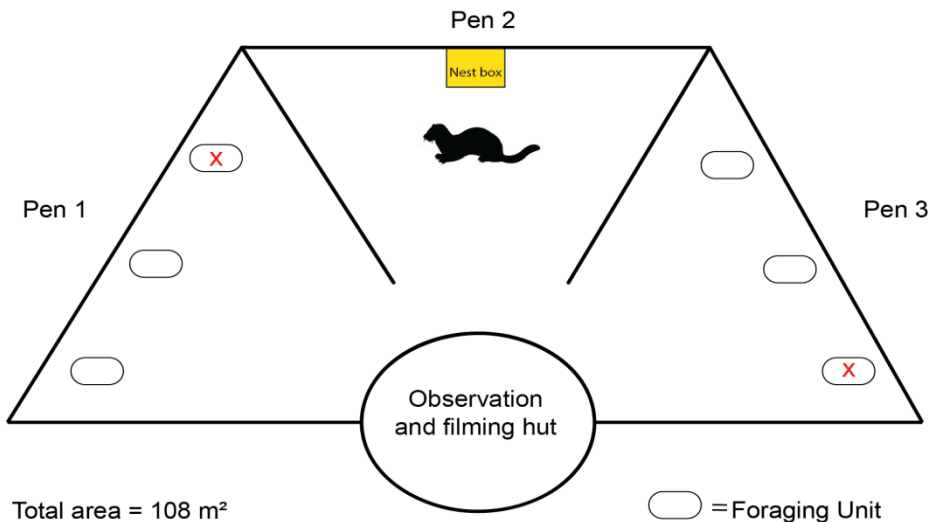
Experiment - Response to predator odour



Co-evolved dominant predators



Novel predator

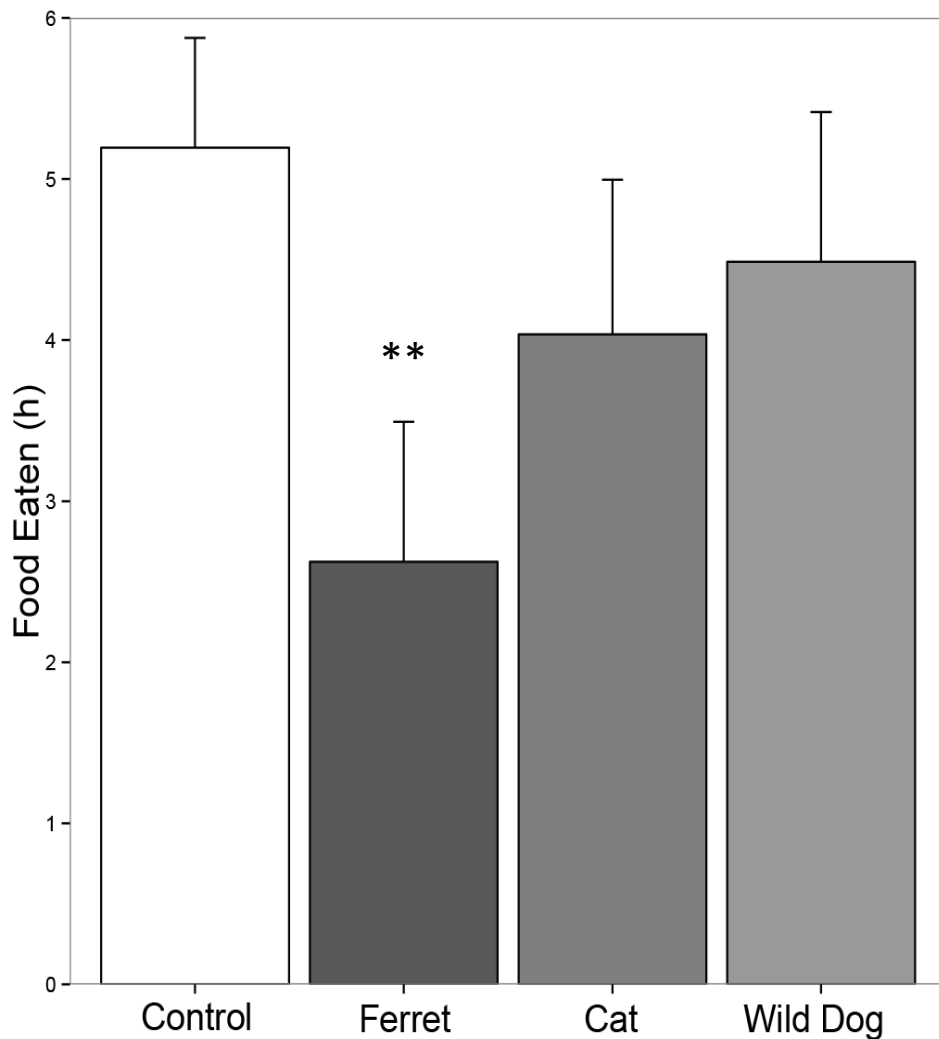


Prediction:
Avoidance of 'risky' food



GV-1248 Camera 5
2011/2/20 12:21:00 AM

Results - Time until food eaten



Results

- Increase in **risk assessment** ✓
- Increase in **avoidance** X
- Reduction in **food harvesting** X

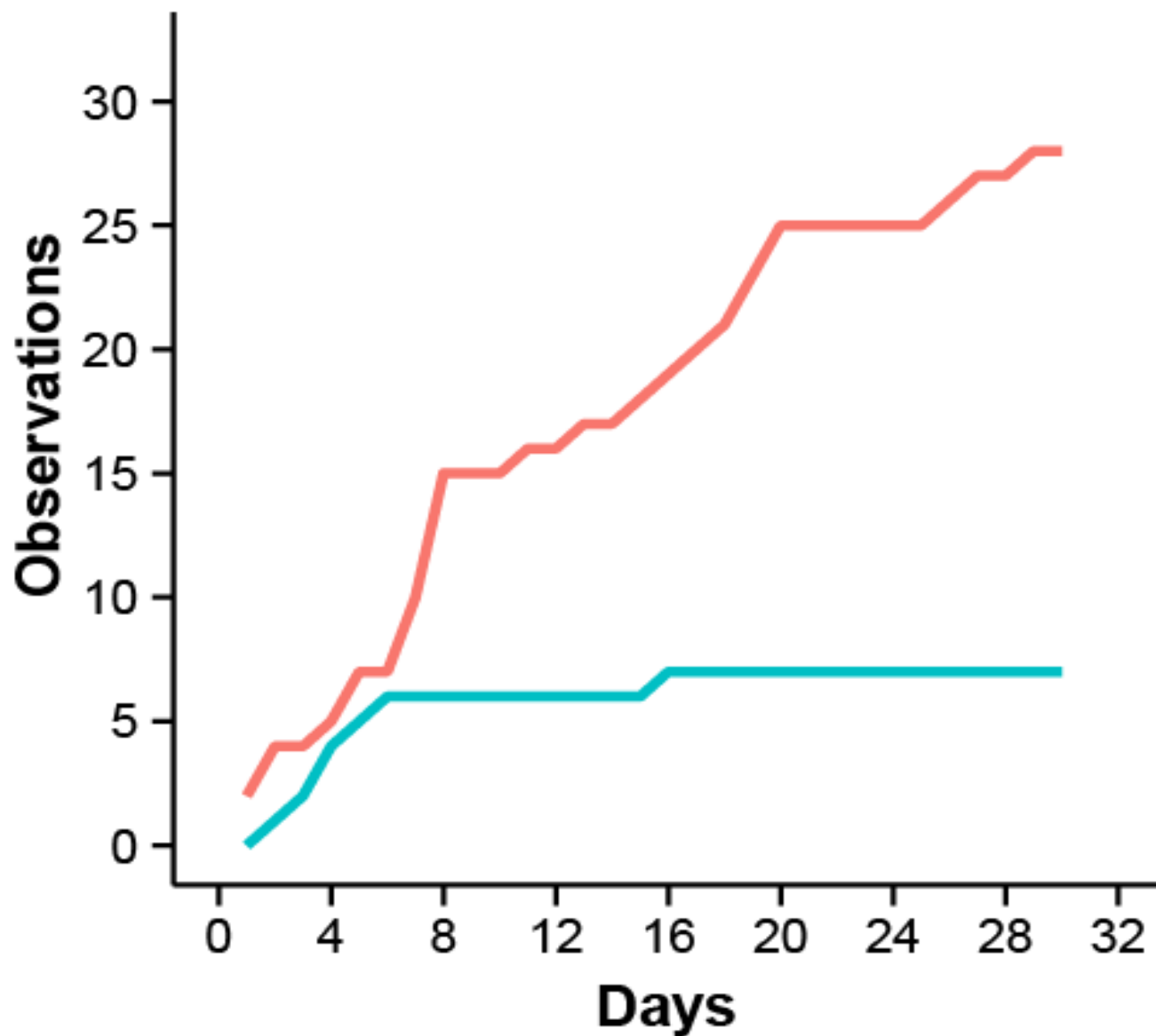
Field trial – Ferret pheromone



Detections



× 4

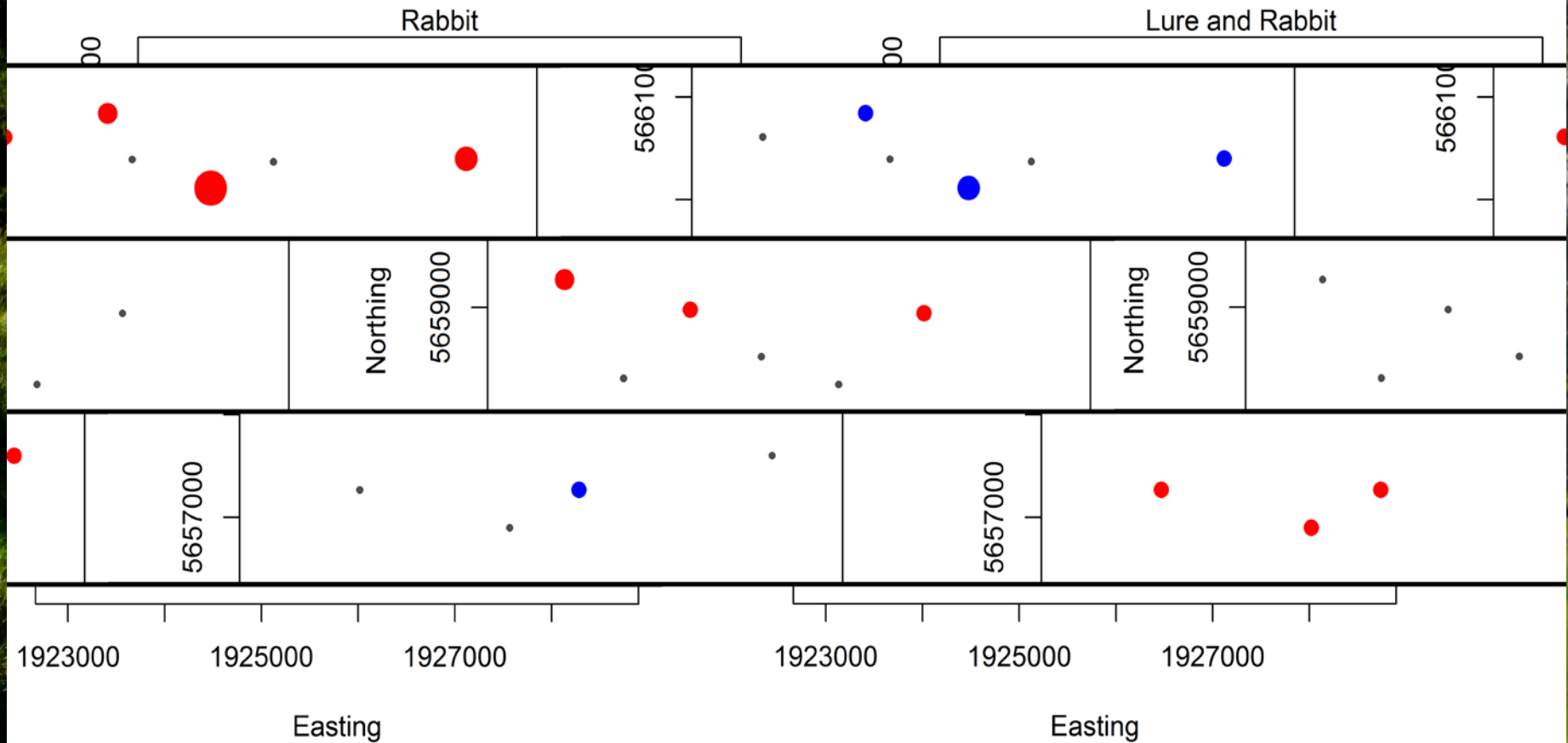


Treatment

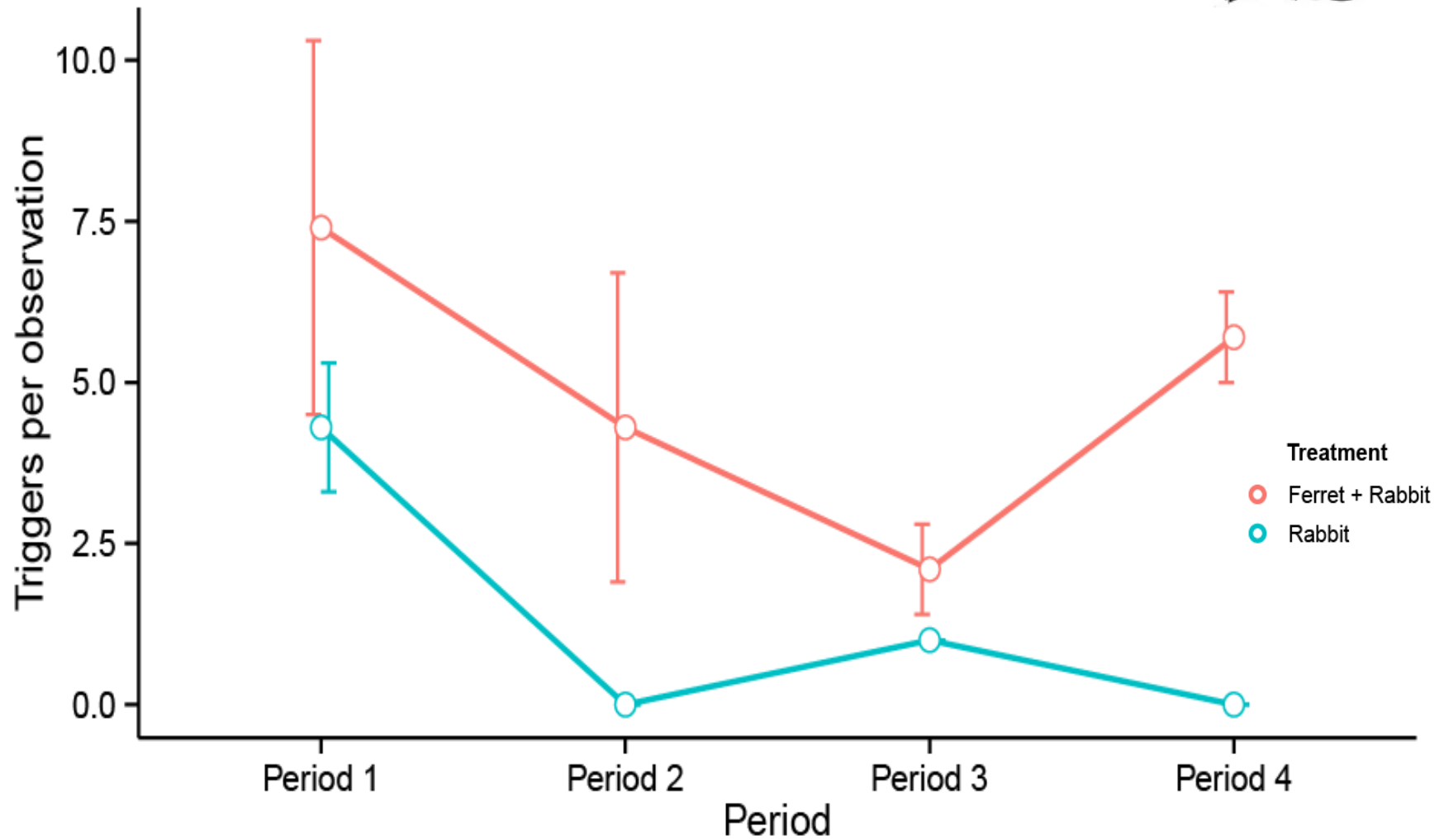
○ Ferret + Rabbit

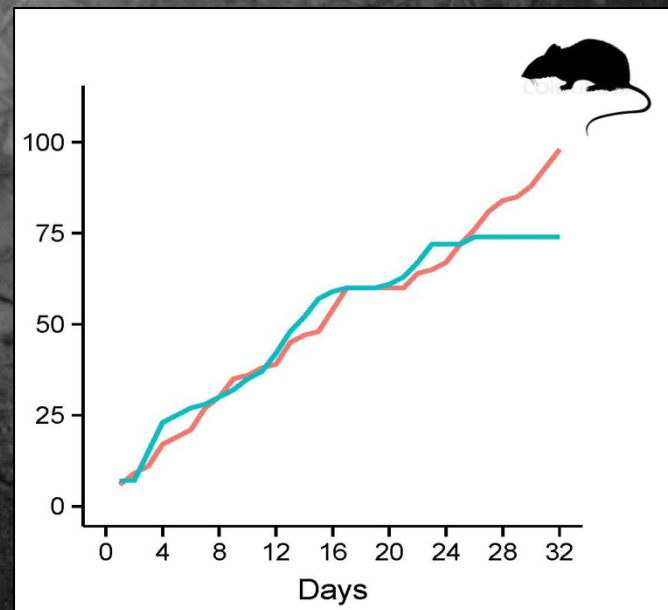
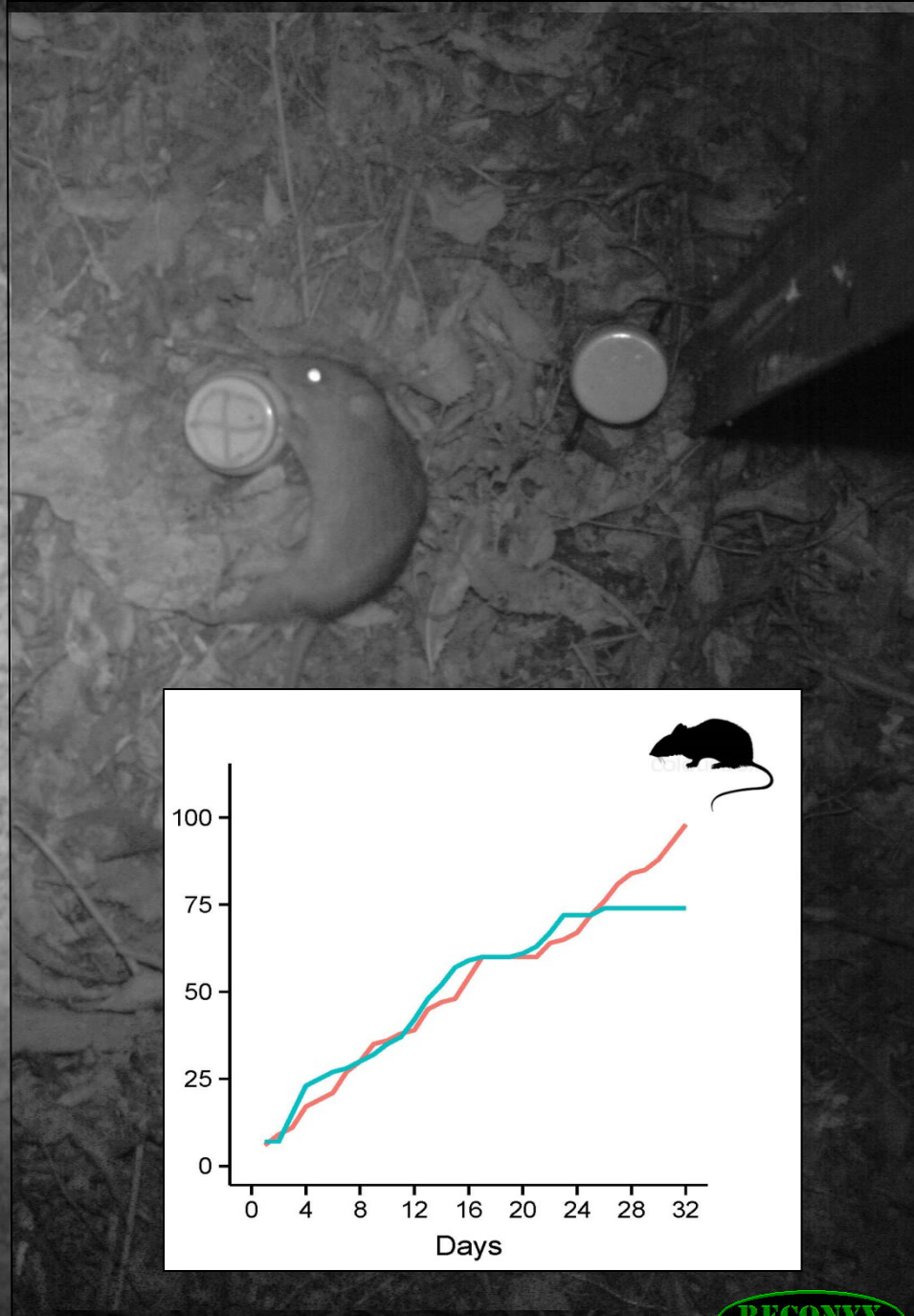
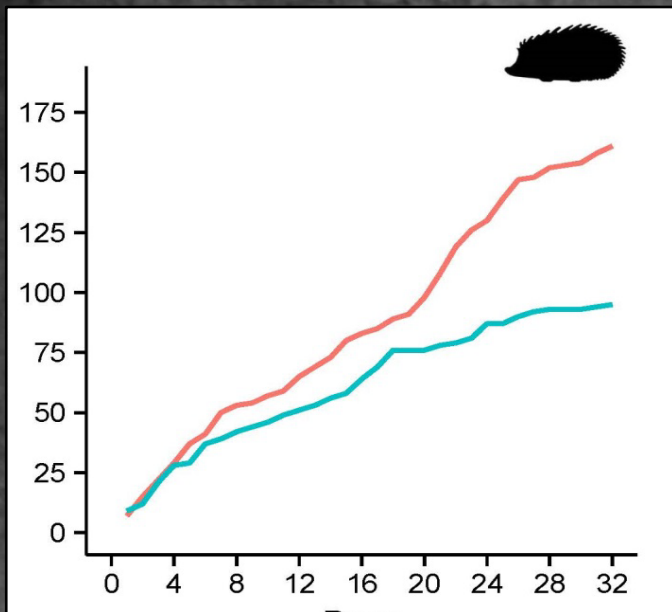
○ Rabbit

Stoat distribution



Engagement

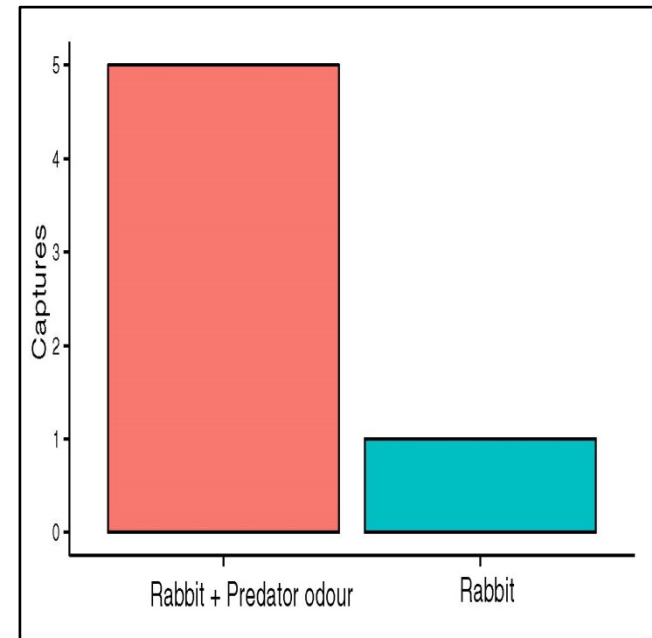




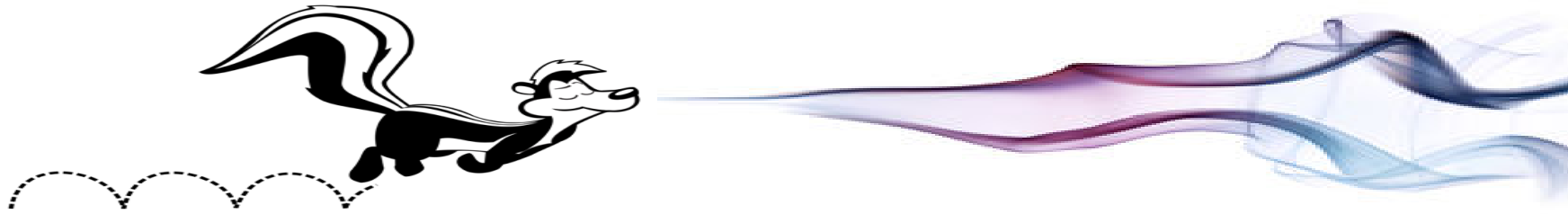
Kill-trap trial

Ark in the Park

- 110 traps normal
- 110 traps normal + ferret pheromone
- 3 months over winter



Why are predators attracted to a dangerous scent?



Important source of information

- Risk assessment
- Resource acquisition
- Ecosystem partitioning

Behaviour in wildlife management

Competition

- Distribution
- Activity patterns
- Prey

Predator scent communication

- Invisible web

Future direction

- Competition in different habitats
- Predator responses to control
- Scent communication
- Development of ferret lure





Thank you



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