



Manaaki Whenua
Landcare Research

Delivering cost-effective biodiversity outcomes at landscape scales

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Collaborators:

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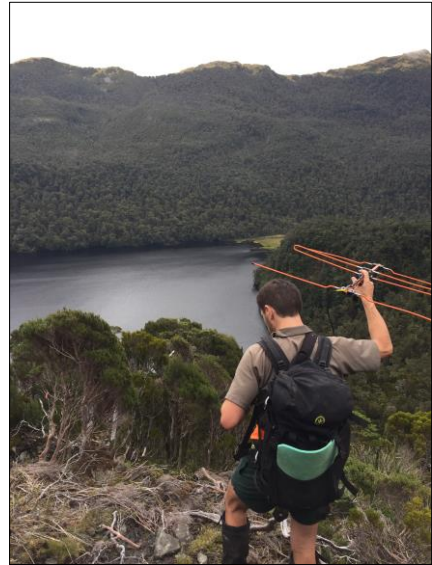
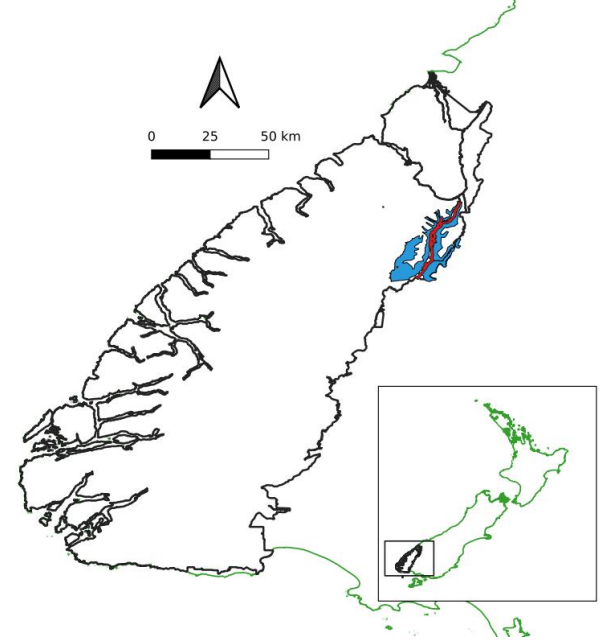
Funding:

MBIE CO9X1609: Kiwi Rescue



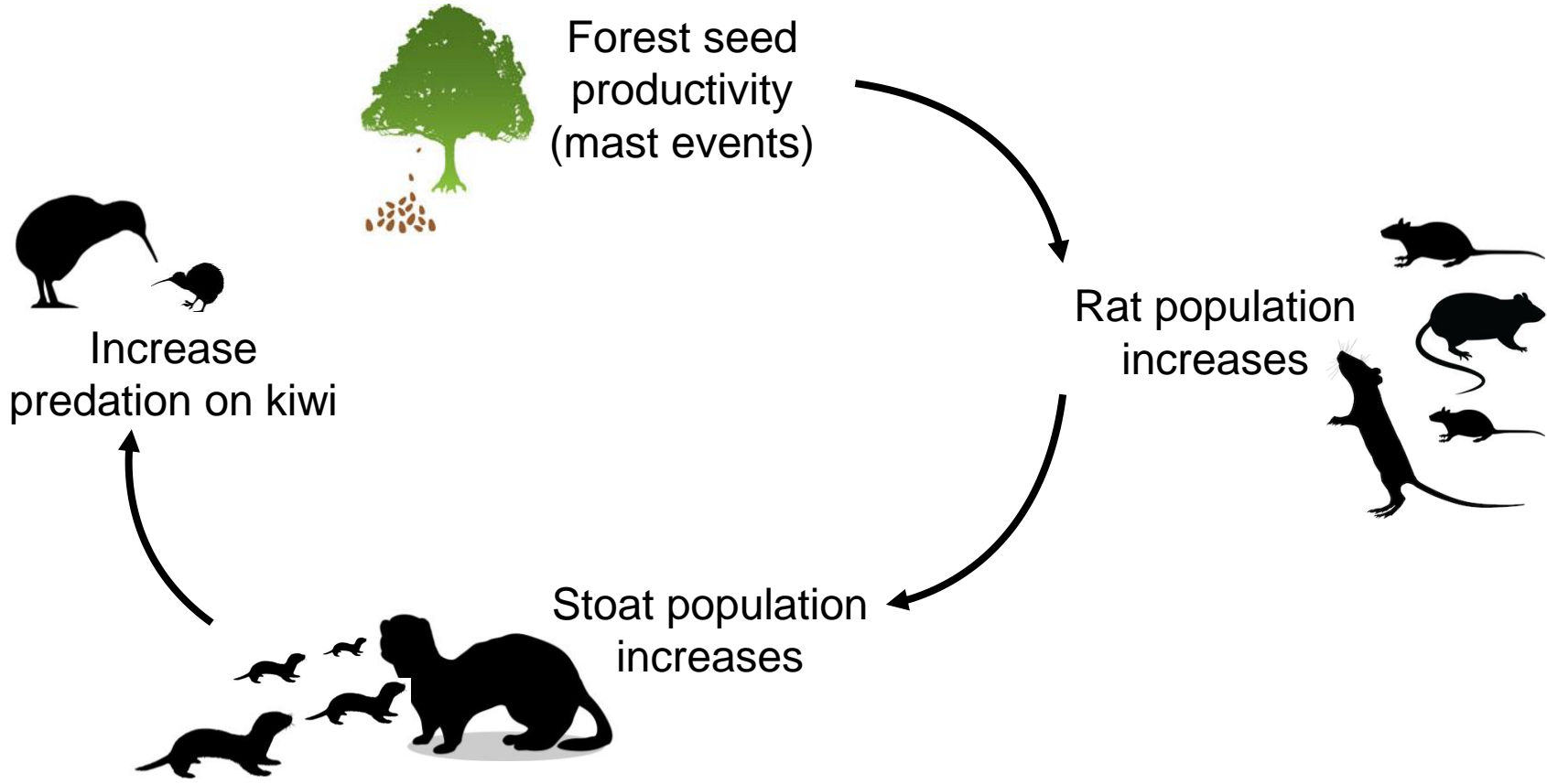
Scaling up

- Increase impact
- Align objectives with feasibility



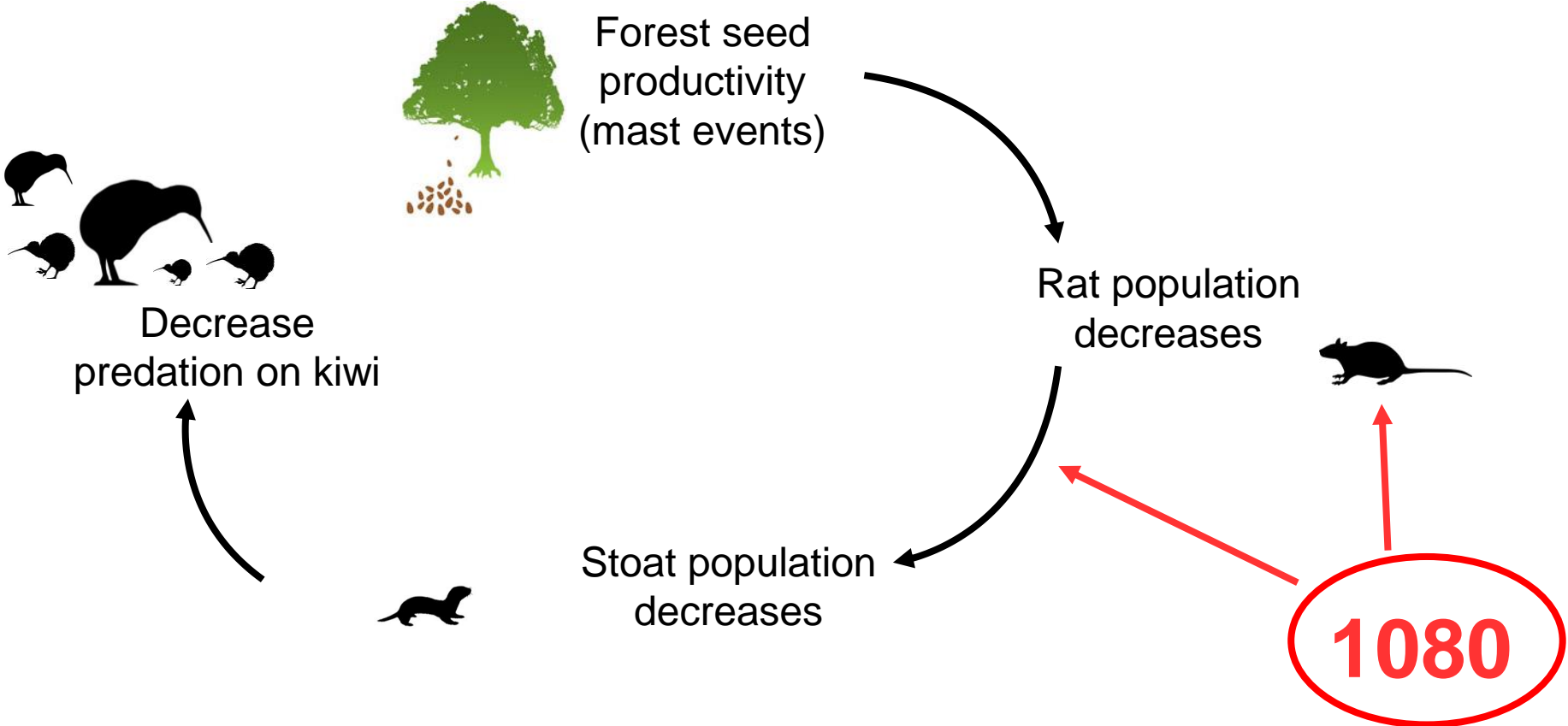


Local-scale dynamics





Local-scale dynamics





Scaling up

- Fine scale**
- Survival
 - Reproduction
 - Competition
 - Predation

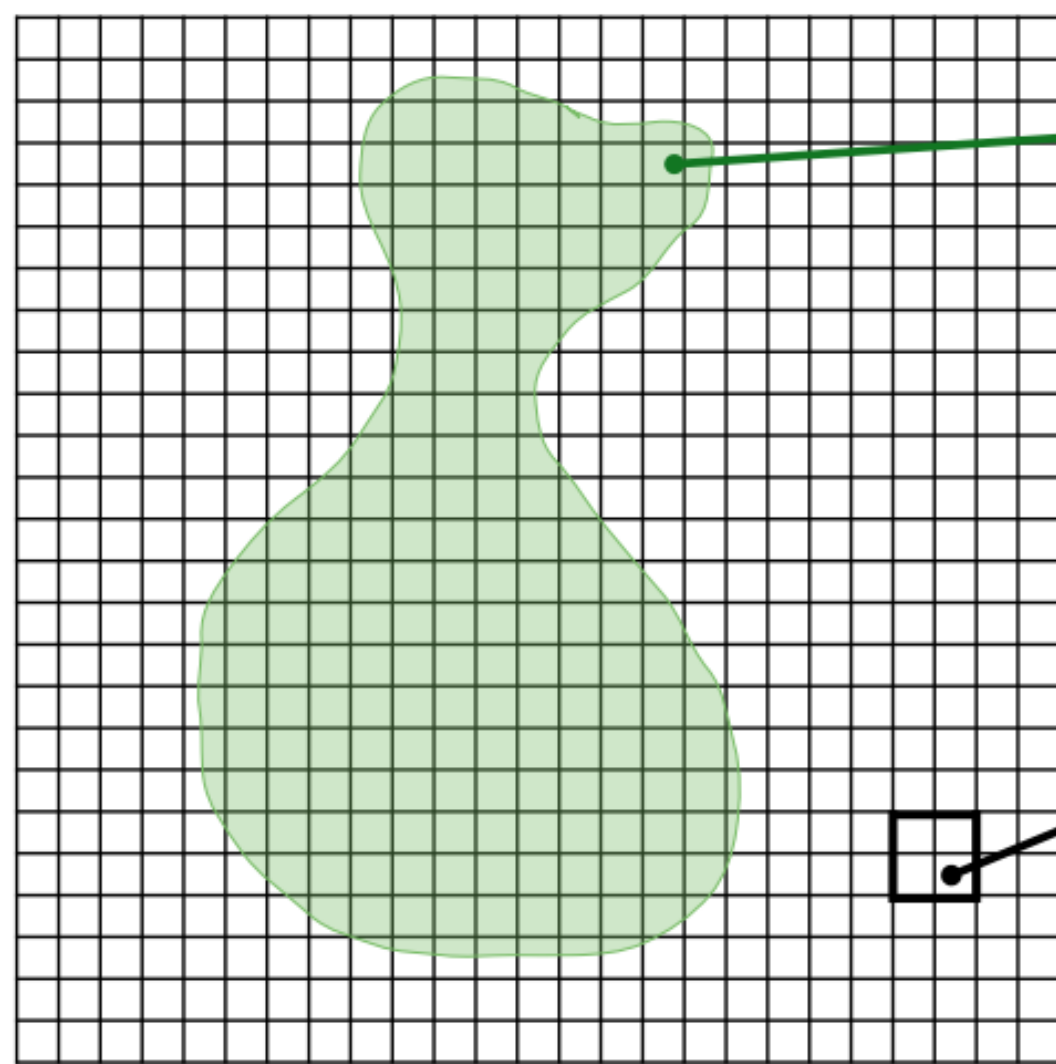




Broad scale
Masting

Scaling up

Fine scale
- Survival
- Reproduction
- Competition
- Predation

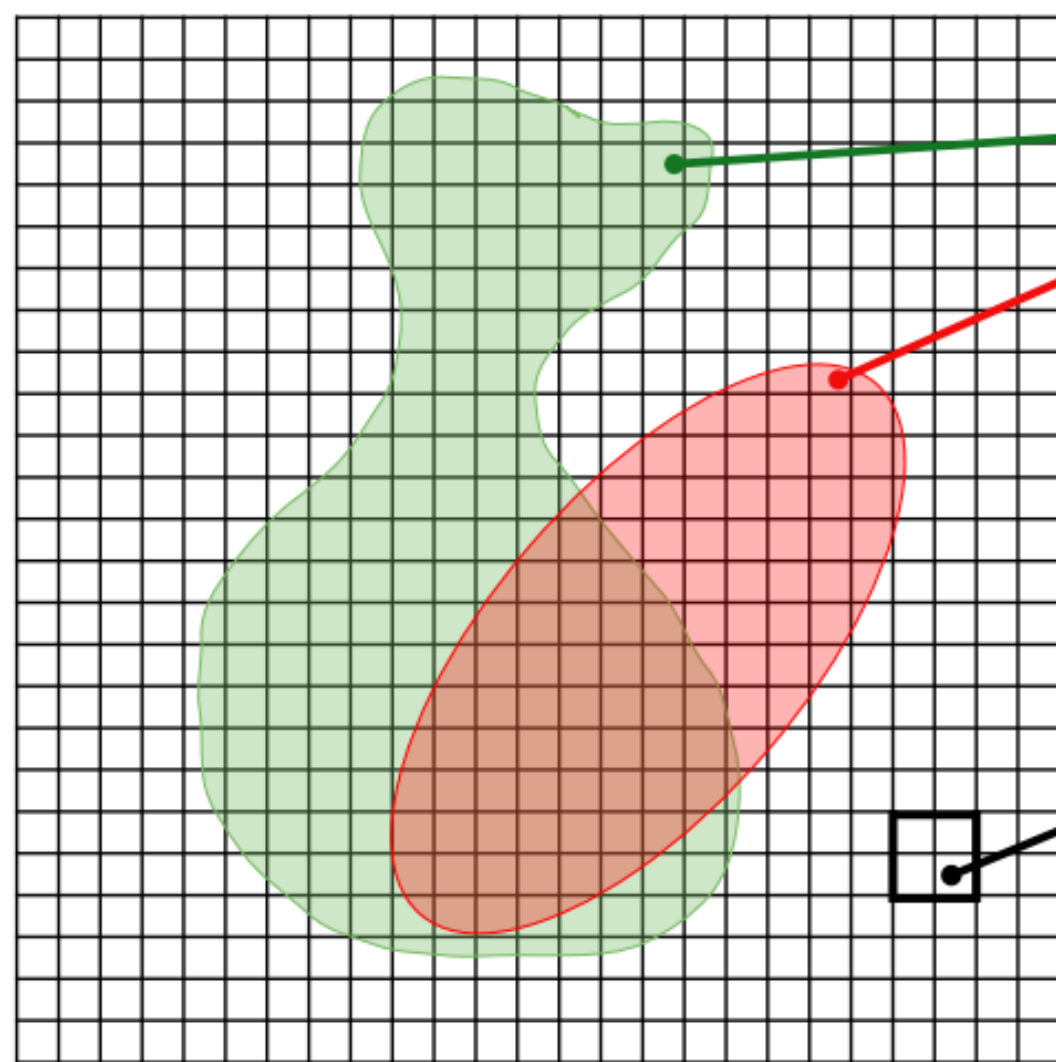




Broad scale
Masting

Disturbance
- 1080

Fine scale
- Survival
- Reproduction
- Competition
- Predation





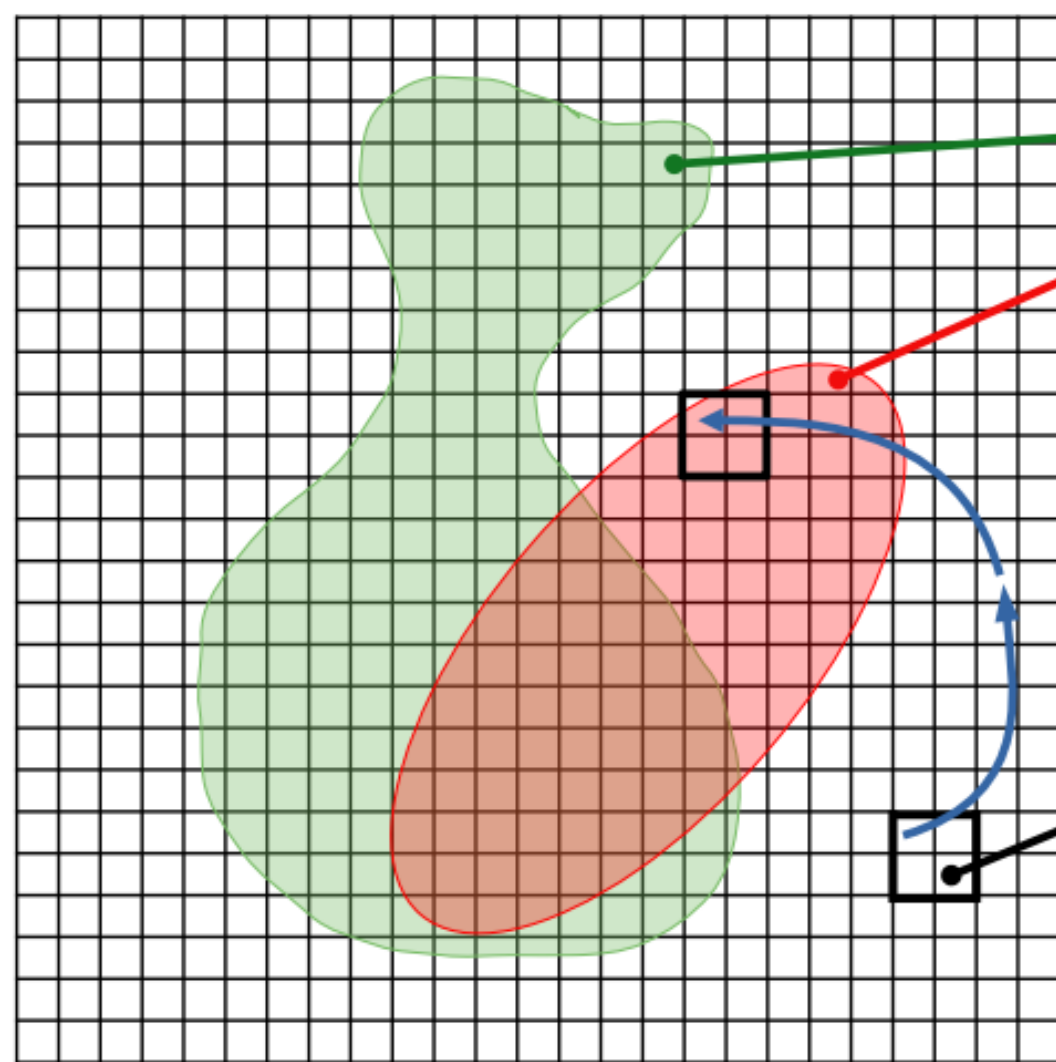
Broad scale
Masting

Disturbance
- 1080

Dispersal

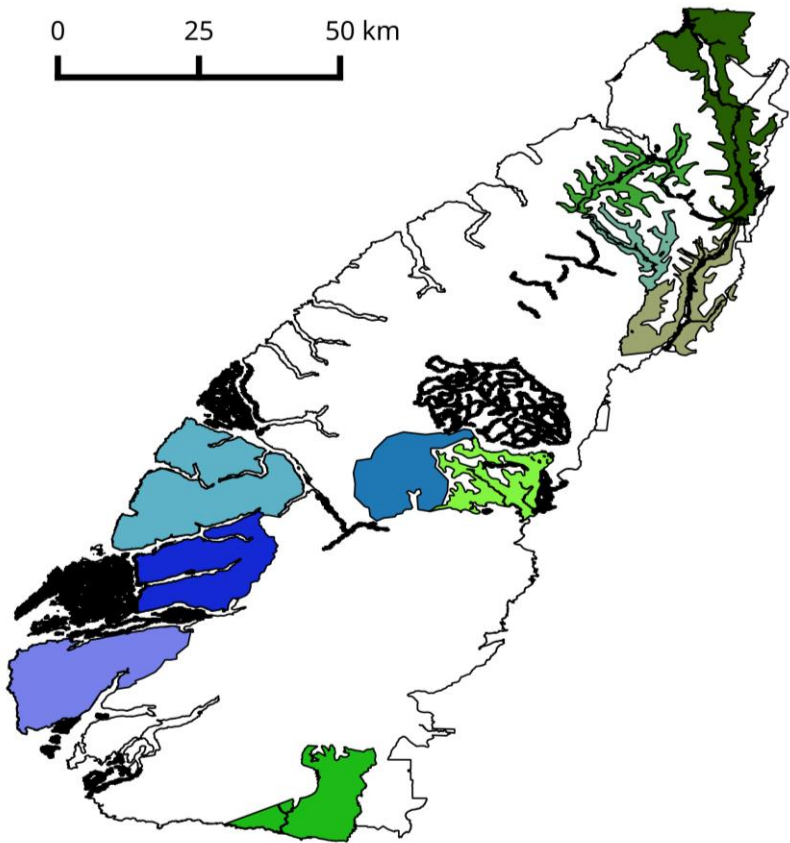
Scaling up

Fine scale
- Survival
- Reproduction
- Competition
- Predation





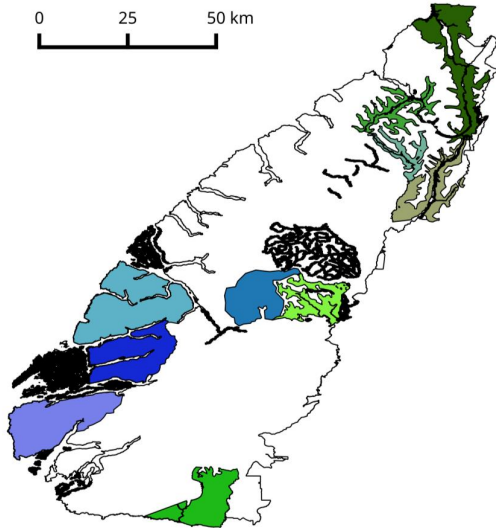
0 25 50 km



Question:

How much will a kiwi population grow (or decrease) given a predator management strategy over a 20 year period?

0 25 50 km



Management strategies

1) Prescriptive

- Rotate 1080 operations
- 3 – 4 years

2) Reactive 1080

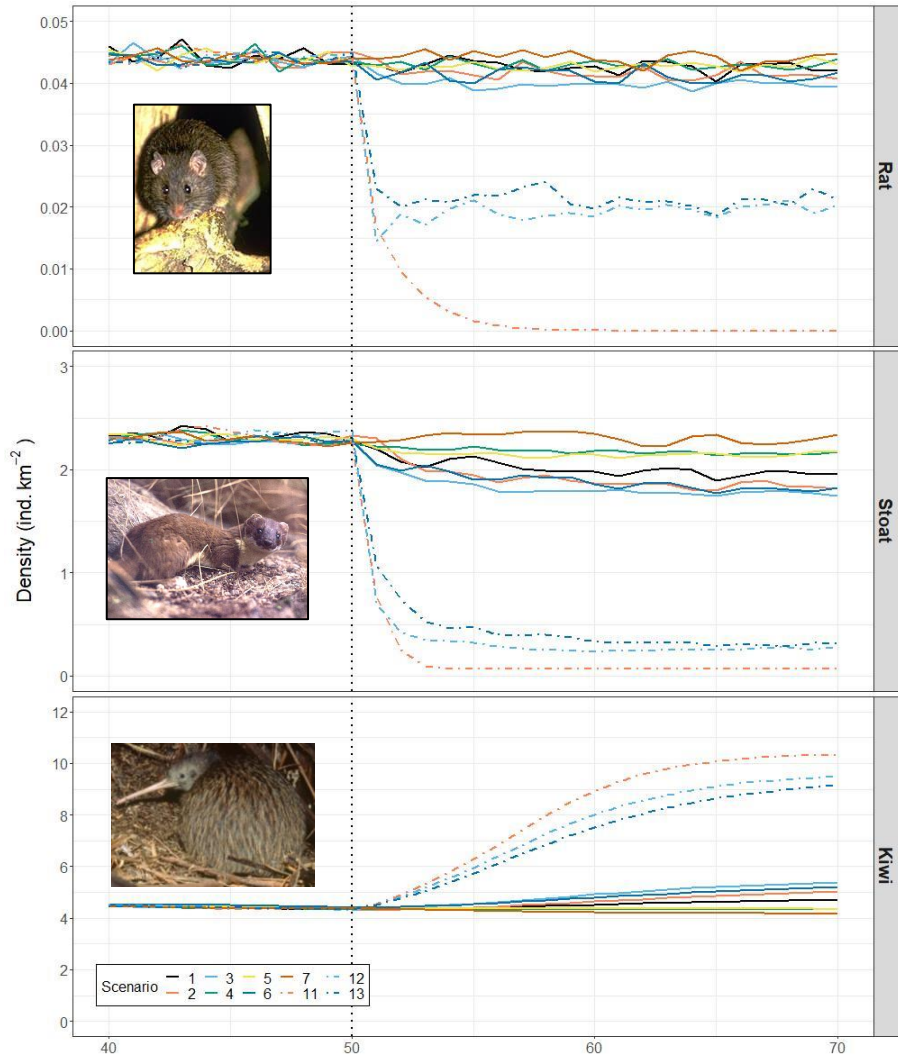
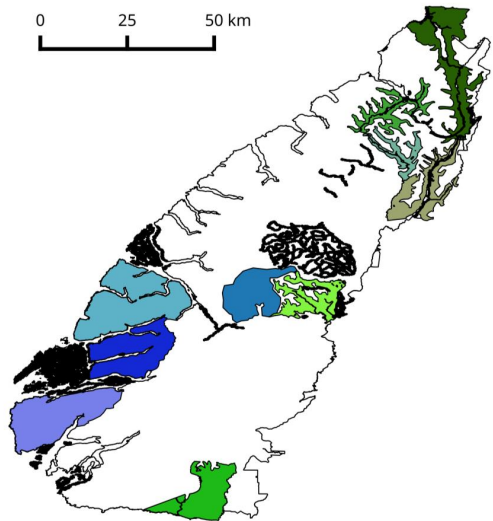
- 20% rat tracking tunnel rate
- 50% of zone in mast



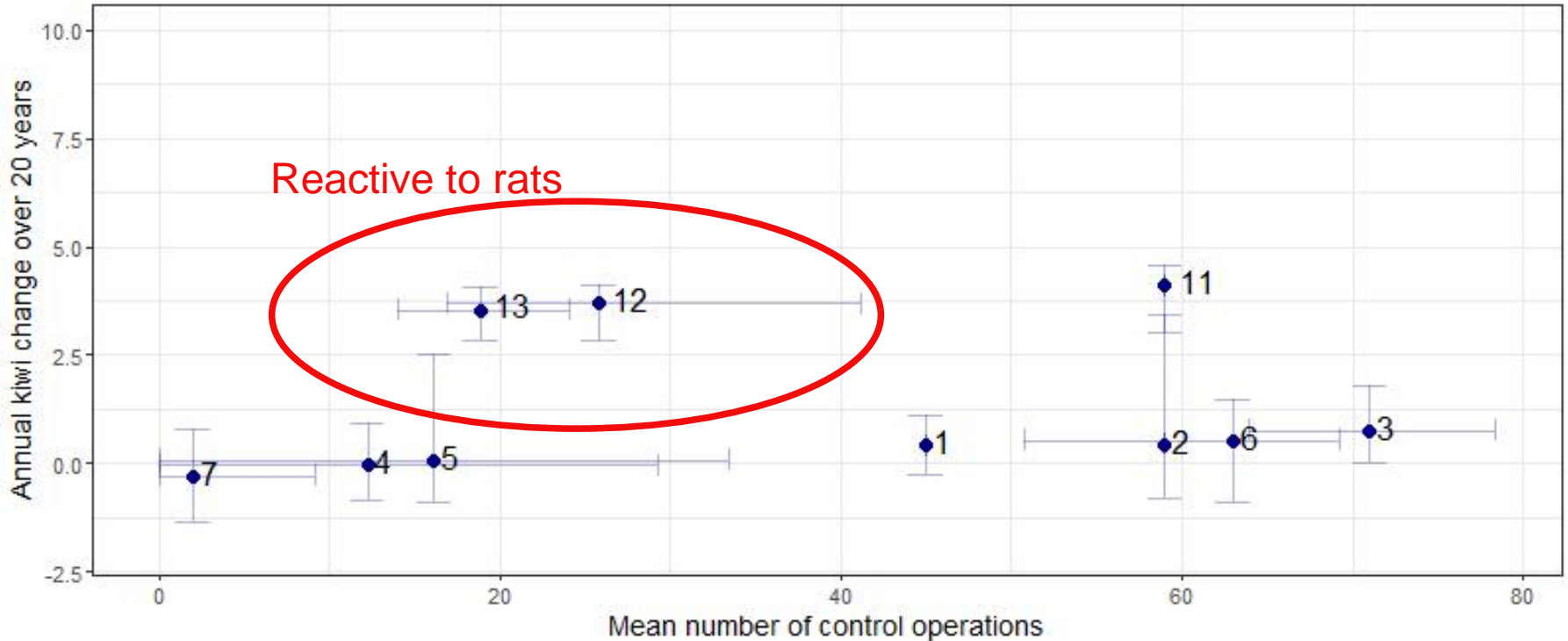


Results:

Population projections



Kiwi outcomes vs. 1080 operations



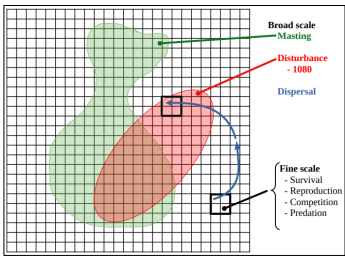
Kiwi outcomes vs. 1080 operations



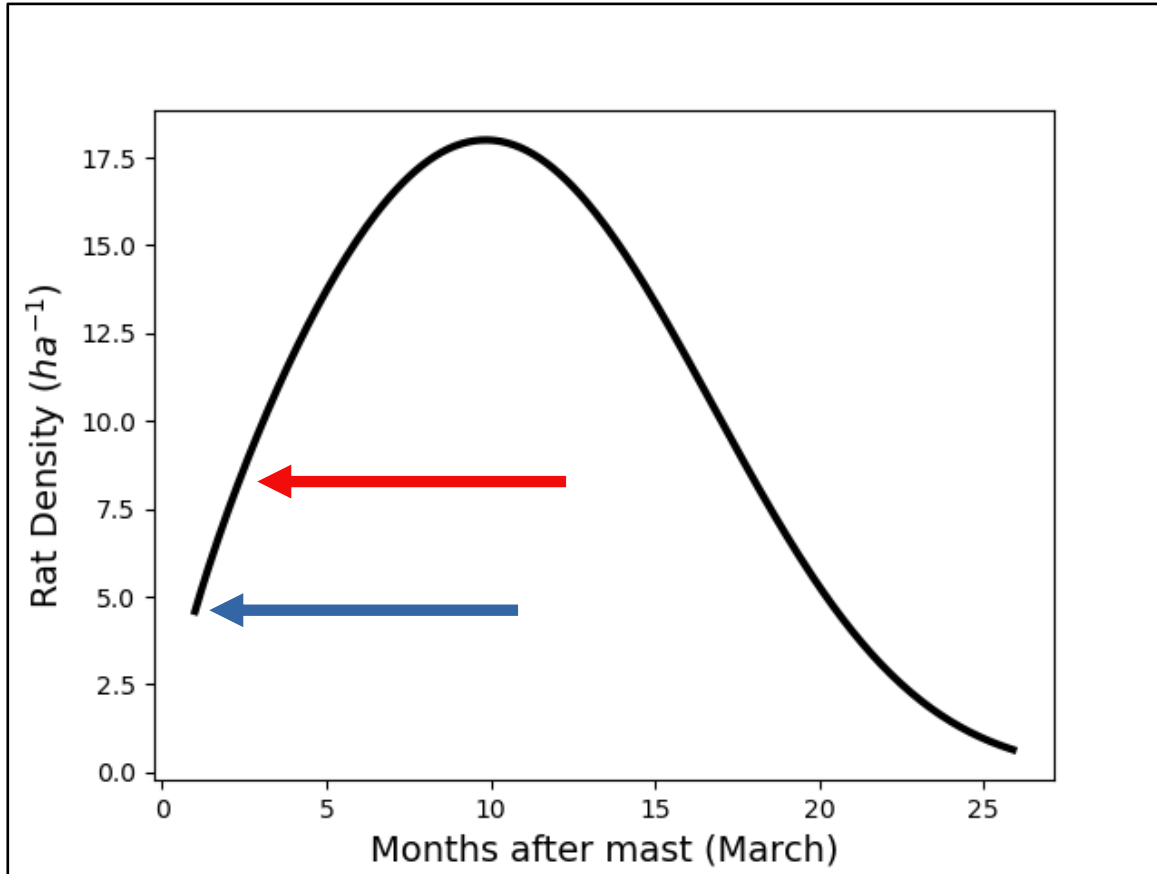


Reactive to elevated rat abundance

- $\geq 20\%$ tracking tunnel rate
- Responding to masting alone was not effective

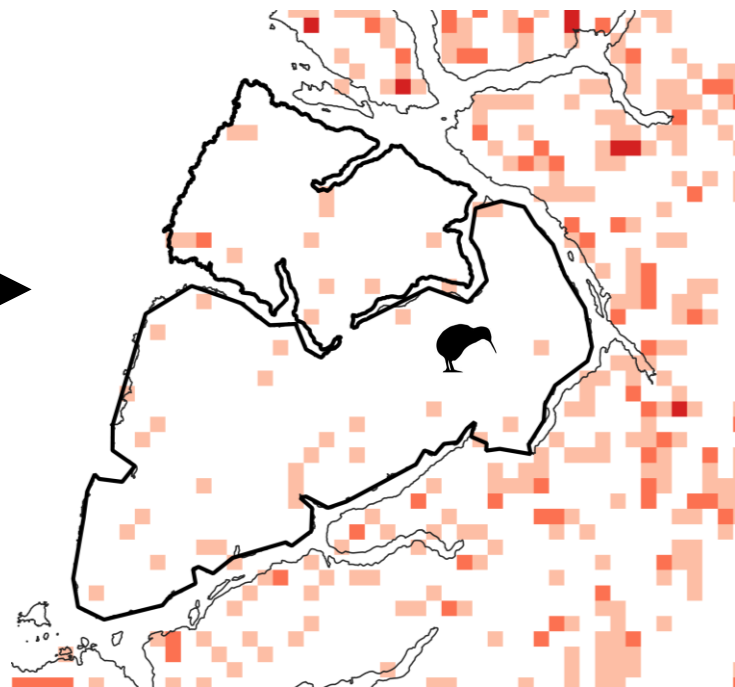
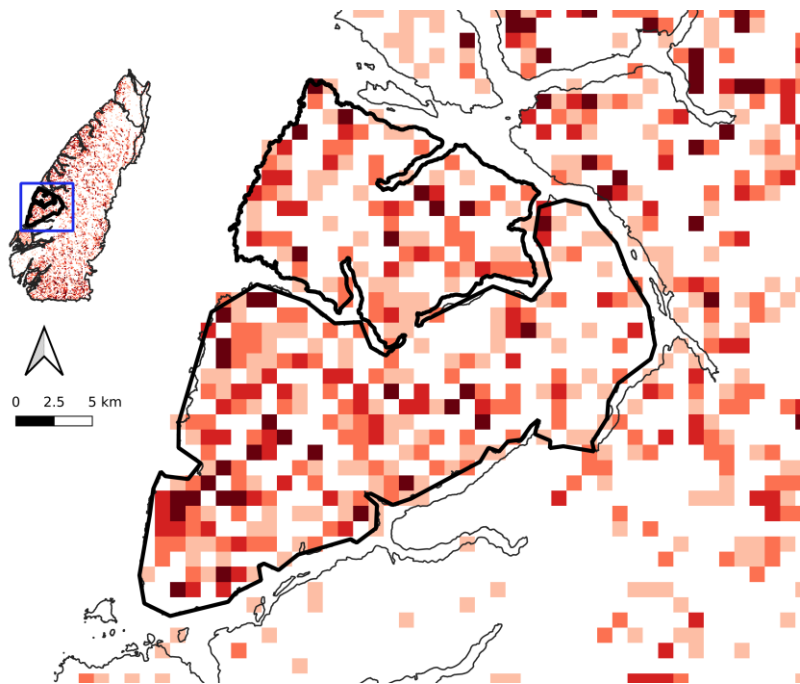


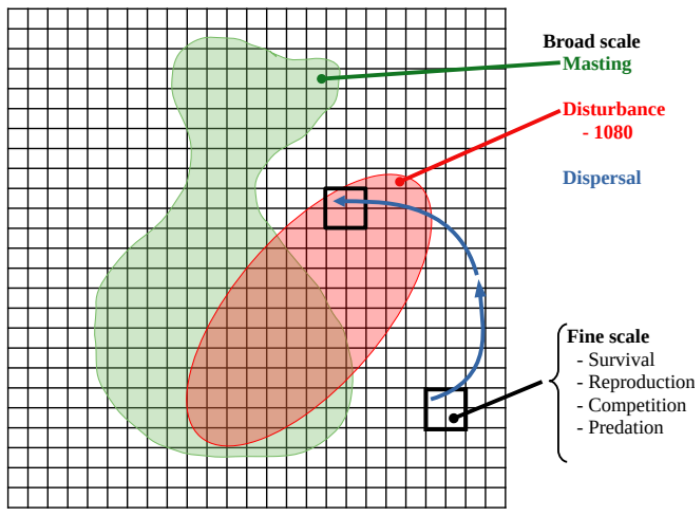
Timing of 1080 application





Patchy stoat distribution





Summary

- Approach generally adaptable
- Linking fine scale with broadscale
- Kiwi outcomes depend on forest resources, rats and stoats
- Best kiwi strategies react to rat monitoring

Summary



- Strategy development is species specific
 - Adult and juveniles vulnerable to predation
 - Rats, stoats and other predators
- Outcomes for multiple endangered species

Summary



- Align biodiversity objectives with feasibility
- Begin projects with quantitative forecast modelling
- Adjust objectives or financial resources



"I wish I could be as calm as JB when it comes to making decisions."

Thank you

