The Hihi Recovery Group and the Kōkako Specialist Group: What do we do and how do we make decisions?

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PARKER CONSERVATION

CONSERVATION, TRANSLOCATIONS, RESTORATION, RESEARCH, MANAGEMENT

What is a recovery/specialist group?

- **A Department of Conservation led and administered advisory group for a particular species**

The provision of robust technical and strategic advice to support the delivery of natural heritage work

Key point - recovery/specialist groups are advisory

- Our role is to
  - Provide advice to decision makers
  - But we do not to make the final decisions about how a species should or should not be managed
  - Group leaders are responsible for the quality of the advice given

So who are on recovery/specialist groups?

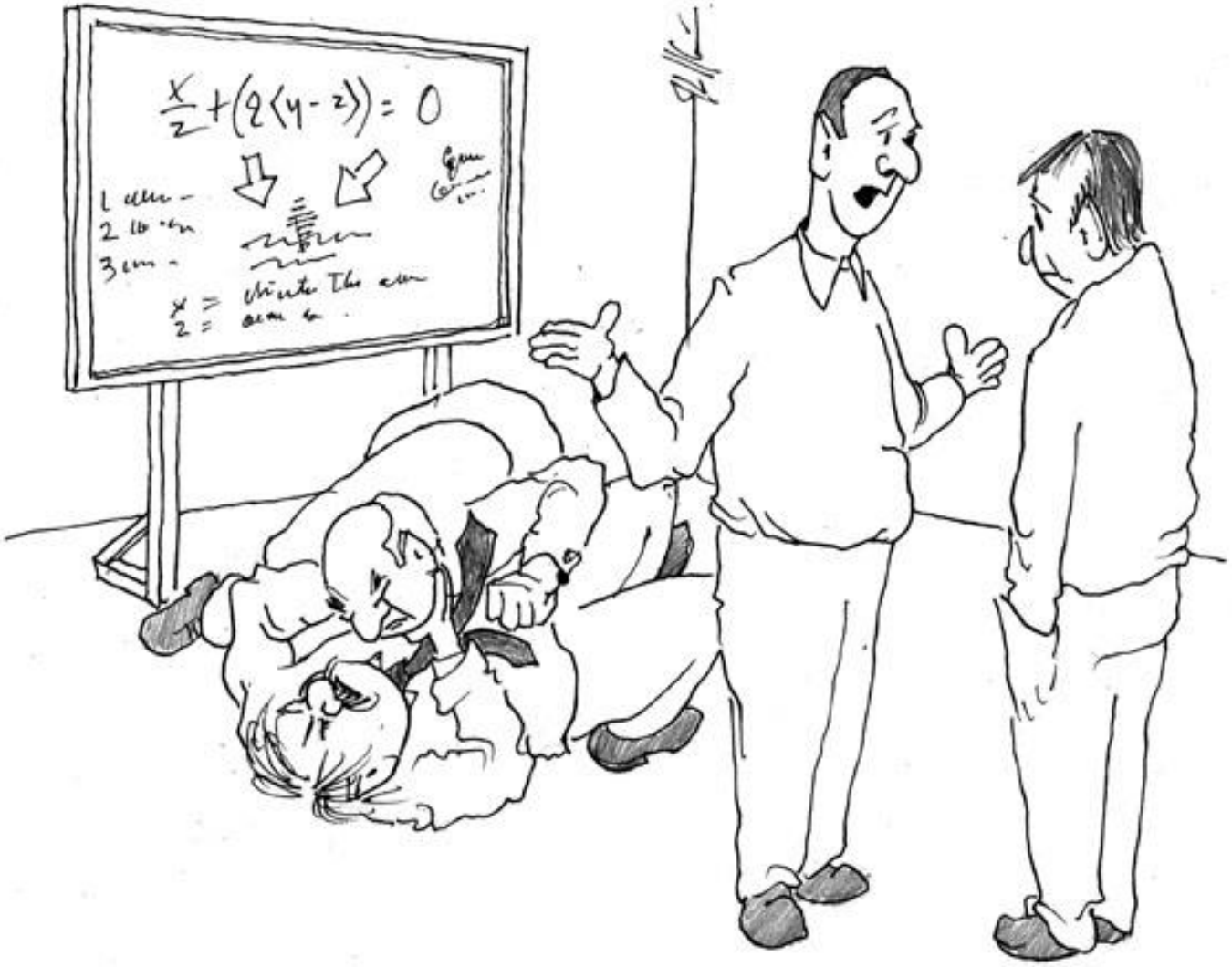
- **Department of Conservation scientists, managers and field staff**
- **Mana whenua**
- **External scientists, managers and field staff including:**

Manaaki Whenua Landcare Research, Parker Conservation, Zoological Society of London, Massey University, Supporters of Tiritiri Matangi, University of Auckland, Rotokare Scenic Reserve Trust, Bushy Park, Zealandia, Independent contractors, etc….

And how do we make decisions about the advice that we give?

“Hihi recovery group meetings are just a bunch of scientists arguing about everything. I just want to get on with it and manage hihi”

- Anonymous, some years ago…



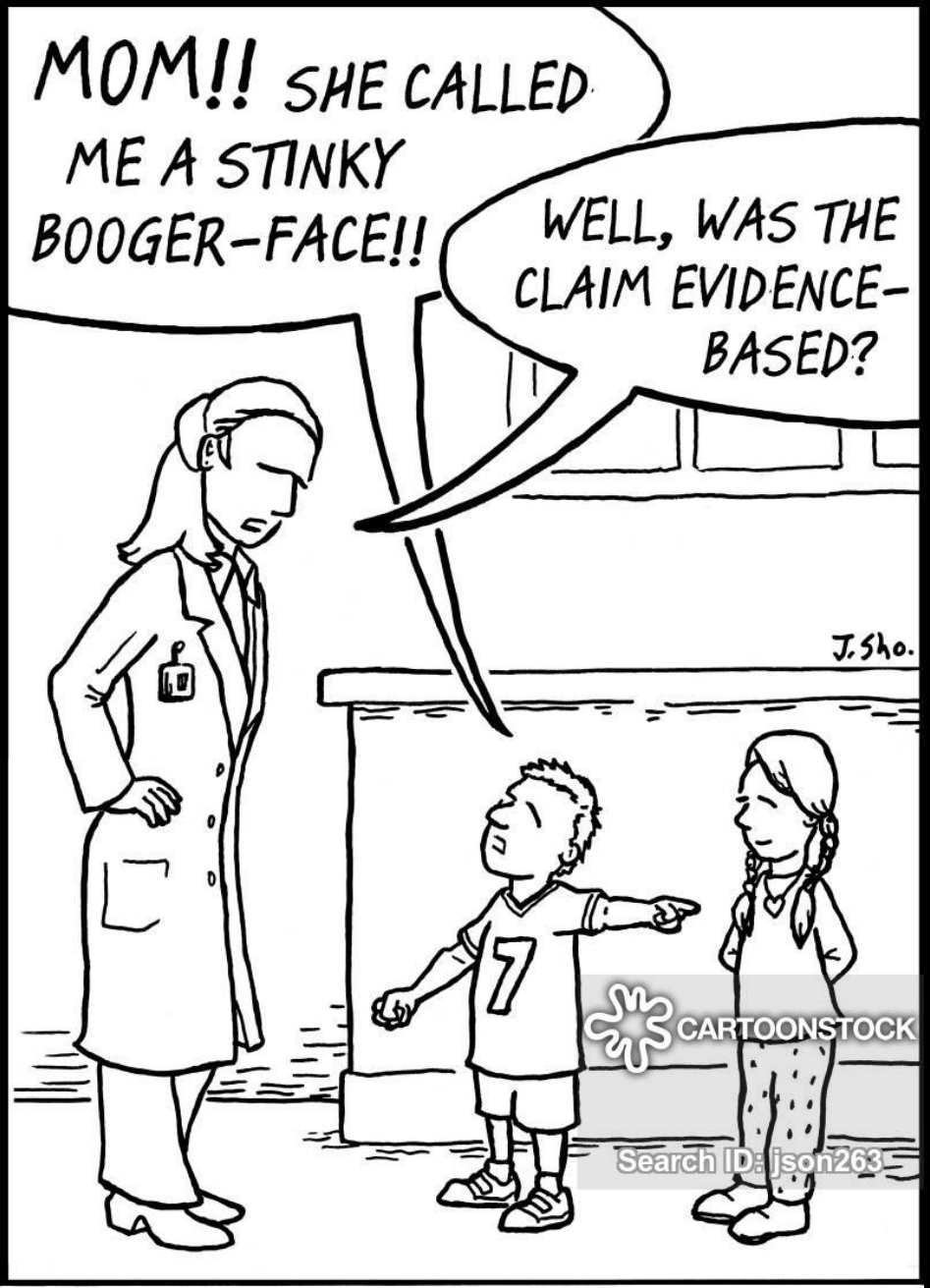
"Hey, that's scientists for you. Keswick and Murphy just can't seem to agree on the cause of global warming."

ARGUE

(According to the Collins English Dictionary)

1. To quarrel; wrangle
2. To present supporting or opposing reasons or cases in a dispute; reason
3. To try to prove by presenting reasons; maintain
4. To debate or discuss
5. To persuade
6. To give evidence of; suggest

Respectful, open, robust, reasoned, values, evidence and theory based debate and discussion about the best way to manage hihi and kōkako for recovery



Scientist Parents

HIHI CONSERVATION

THE ONLINE RESOURCE ABOUT THE HIHI RECOVERY GROUP

EVENT

Rewilding Taranaki's Forests: Adding a splash of hihi colour

Rewilding Taranaki's forests through reintroduction: adding a splash of hihi colour New Plymouth public event. Wednesday 3rd April, 2019. 6.00pm – 8.00 pm Venue: Puke Ariki (1 Ariki Street, New Plymouth) Host/chair will be Dr John Ewen (Zoological Society of London and Co-Chair Hihi Recovery Group) Part one: Hihi are moving in! The story of [...]

MEDIA

Hihi research: What the stitchbird's plight means for threatened species everywhere

PRESS RELEASE

Bumper hihi breeding season on pest-free Tiritiri Matangi

HIHI RECOVERY METRICS

POPULATION

7

Populations are located in New Zealand (we want more)

FEEDING

6 of 7

Sites are provided supplementary food (we want less)

NEST BOXES

5 of 7

Sites need to have nest boxes (we want less)

VISITORS

186,893

Visitors to sites with hihi in last year.

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HIHI Conservation needs your help to continue our conservation effort in New Zealand. If you are able to assist financially or in a volunteer capacity please contact us.

THANK YOU FOR YOUR SPONSORSHIP!

tumblewood

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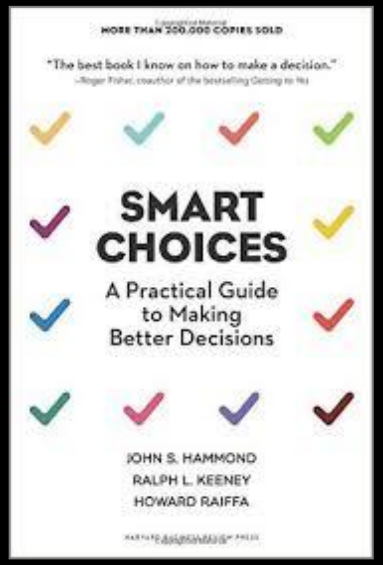
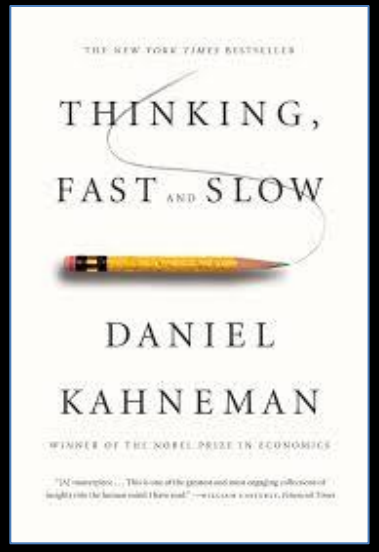
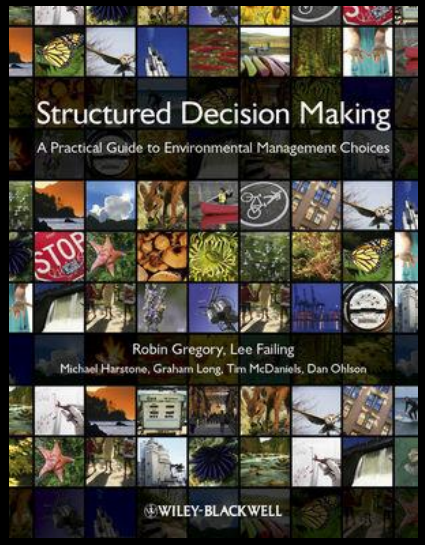
Principles of Decision-Making: PrOACT

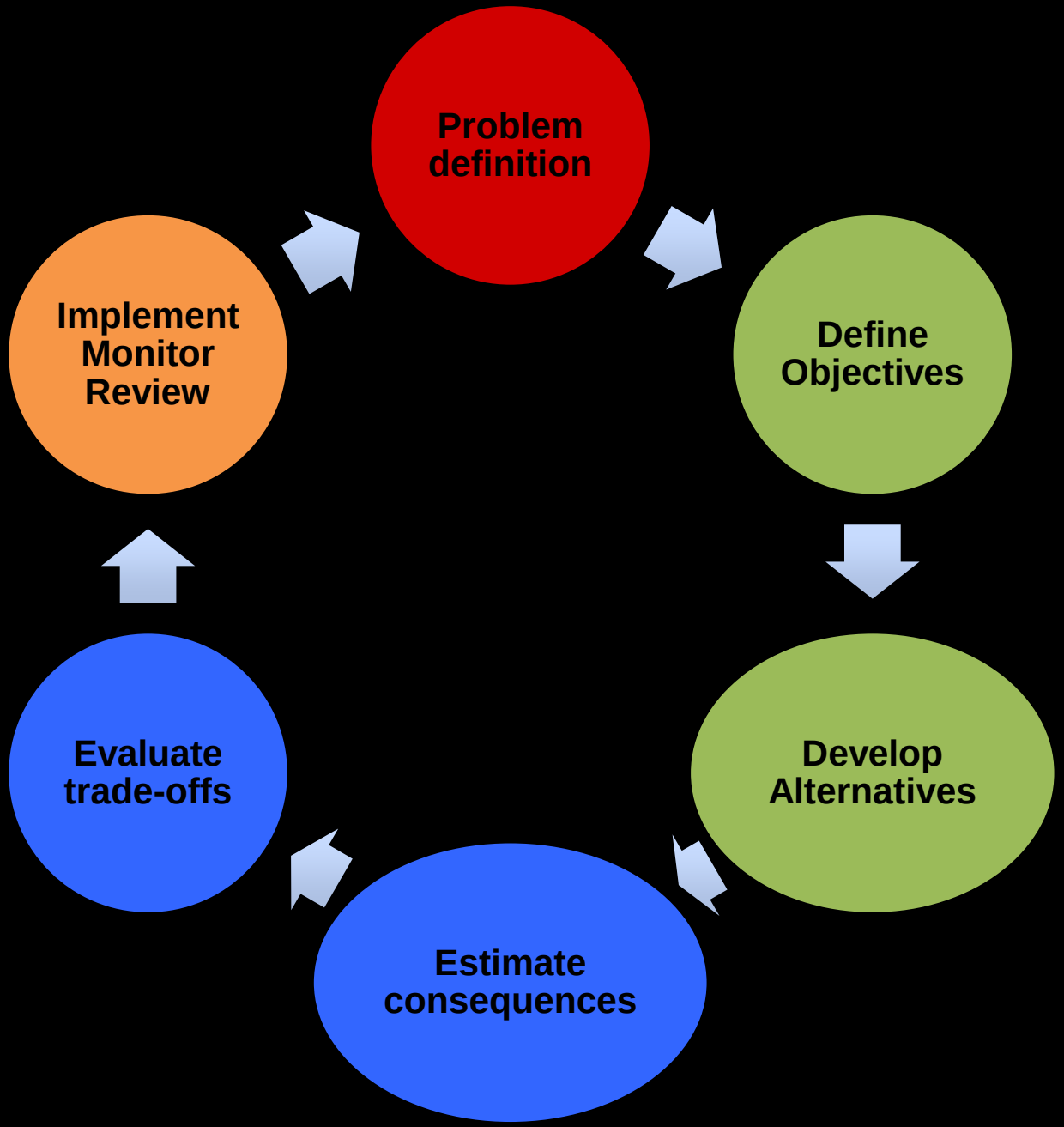
Structured Decision Making

- **Defining the Problem**
- **Objectives**
- **Alternatives**
- **Consequences (models)**
- **Trade-offs and optimisation**








Problem definition
Define Objectives
Develop Alternatives
Estimate consequences
Evaluate trade-offs
Implement Monitor Review

Defining the hihi problem

- Formally widespread in the North Island
- Introduced mammalian pests, habitat loss, pathogens?
- Extinct on the mainland, Kapiti & Aotea/GBI by 1885
- Low public profile

Current hihi distribution

- **One natural population**
  - ***Hauturu o Toi***
- **Two translocated island populations**
  - ***Tiritiri Matangi & Kapiti (c. 300 birds)***
- **Four translocated mainland populations**
  - ***Zealandia, Maungatautari, Bushy Park, Rotokare (c. 280 birds)***

Photos: John Ewen & Peter Frost

Hihi recovery objectives

- **Hihi Recovery Group Fundamental Objectives**
  1. **Increase the total number of hihi nationwide**
  2. **Increase the natural setting of hihi**
  3. **Reduce the cost of managing hihi populations**
  4. **Increase awareness & appreciation of hihi**

Photo: Paul Gibson

Hihi management alternatives

- Do nothing
- Maintain and enhance existing sites
  - Modify supplementary feeding regime?
  - Modify provision of nest boxes?
- Translocate birds to new sites
  - Where to?
  - Feeding?
  - Nest boxes?

Consequences of hihi management…

- Objective one
  - Increased the total number of hihi
- Objective four
  - Increase awareness & appreciation of hihi

Photo: Mandy Brooke

Trade offs for hihi management…

- Objective two
  - Increase the natural setting of hihi?
  - *Feeding all translocated populations, nest boxes at most*
- Objective three
  - Reduce the cost of managing hihi populations?
  - *Feeding & nest box management is expensive*

Monitoring and reviewing hihi management…

- How do we chose translocation sites where we don't need to feed or provide nest boxes?
- How do we manage uncertainty & risk tolerance?
  - Modified feeding regimes might mean fewer birds…
  - …or even failed translocations?

Photo: Alastair Jamieson

Estimating vital rates for new hihi reintroduction sites

(survival, reproduction, dispersal)

- **Data-derived priors**
  - **Need to account for site and species differences**

- **Expert judgment**

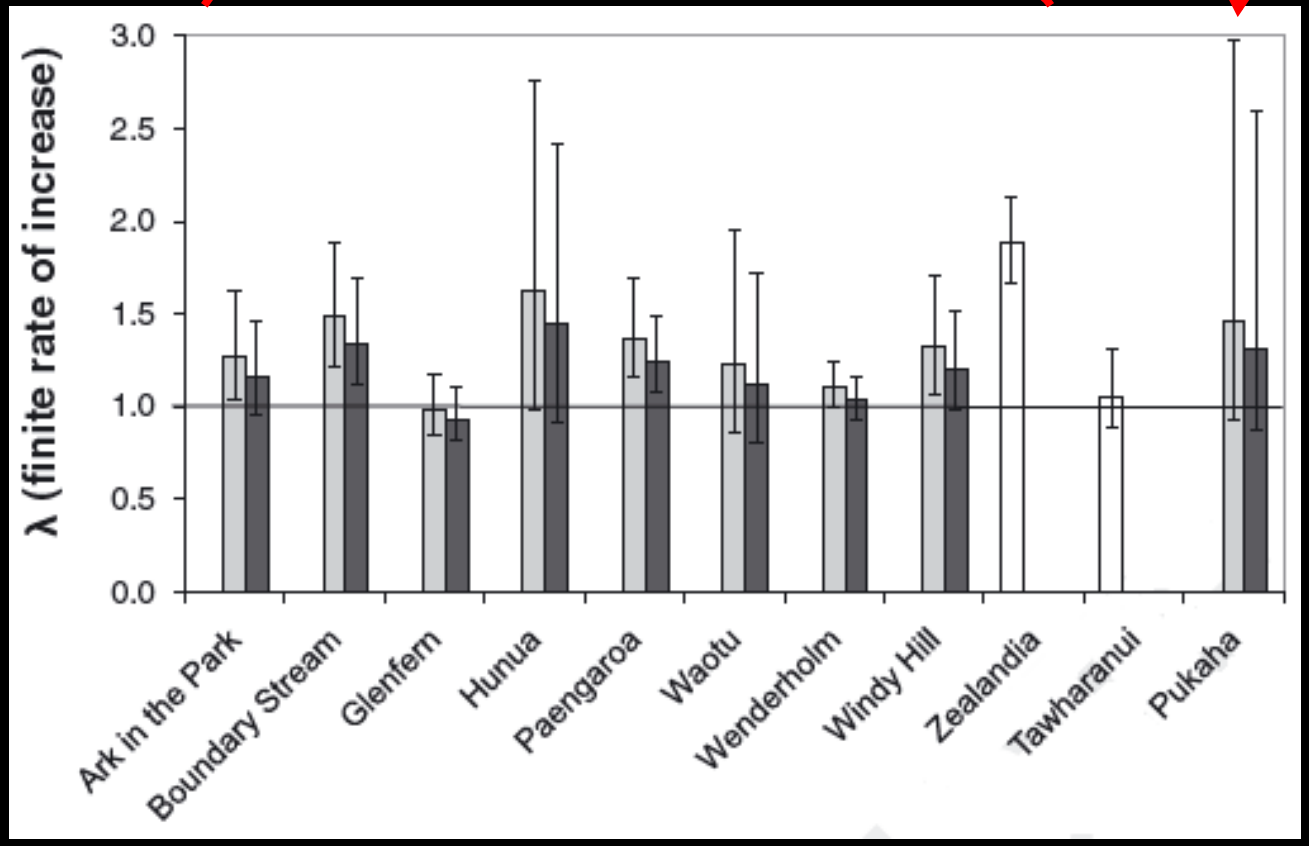
  - Need to incorporate uncertainty

Data-based Priors

e.g. NI robin reintroductions to sites with rat control

sites with data

proposed site



Parlato & Armstrong (2012) *Conservation Biology*

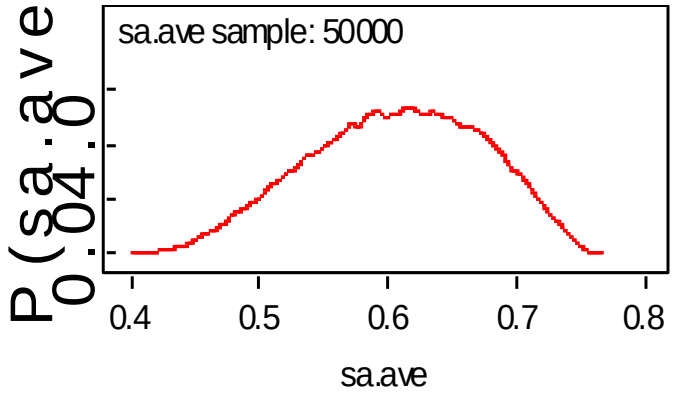
Priors based on Expert Judgement

e.g. proposed hihi reintroduction to Tāwharanui

Predicted adult female survival

Expert	Low	Best	High
Kev	0.40	0.60	0.70
Mhairi	0.60	0.70	0.80
Troy	0.35	0.69	0.80
Kate	0.30	0.50	0.70
Doug	0.35	0.60	0.80
Average	**0.40**	**0.62**	**0.76**

Beta-PERT Distribution



	Feeding		No feeding	
	Est.	SE	Est.	SE
Mean juv per 1st-year female	2.43	0.19	0.64	0.28
Mean juvs per older female	3.57	0.48	0.93	0.42
Pr. juv survives to breeding	0.39	0.06	0.32	0.07
Pr. ad. female survives 1 year	0.61	0.06	0.45	0.07

We are reasonably good at choosing new hihi sites

- As long as we feed the birds
- Currently exploring modified feeding regimes or even no feeding…
  - The outcomes are uncertain
  - Risk tolerance varies
  - Sunk costs
  - Individual welfare?

Photo: Martin Sanders

Defining kōkako translocation "success"…

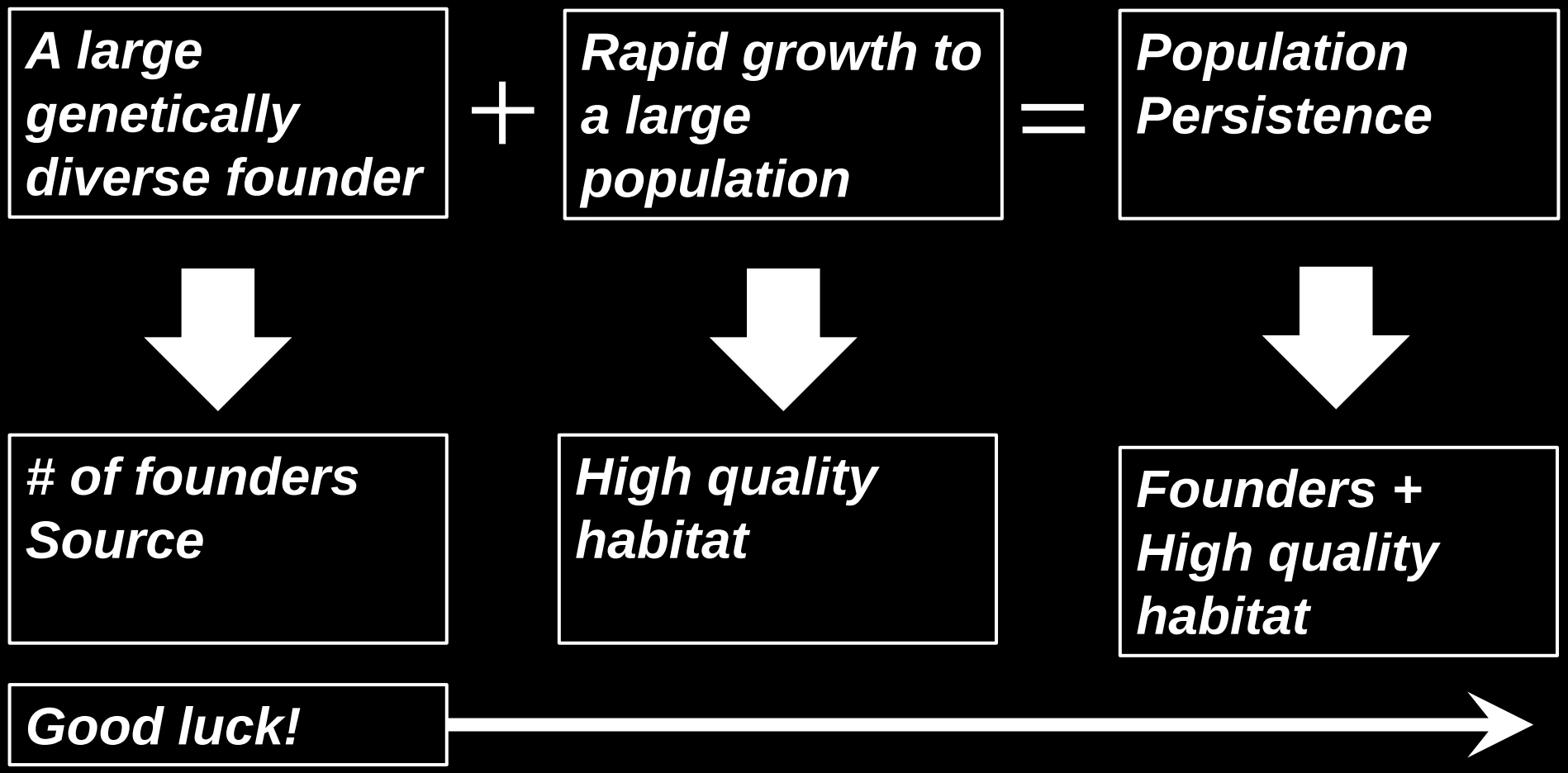
- …depends on your objectives
- Population persistence…

The creation of large populations (100s-1000s of individuals) with a high probability of persisting in the long term (100s of years)

The outcome of every translocation is uncertain

- Low versus high quality habitat
  - Exotic predators
  - Vegetation associations
  - Physical variables
  - Size
- Genetic factors
  - Inbreeding depression
  - Genetic drift
- Stochastic events
  - Predator irruption
  - Weather
  - Novel pathogens
  - Fire
  - Economic collapse
- Climate change

Inbreeding depression, genetic drift & population persistence



Grow fast & get big

The challenge for kōkako translocations as a recovery tool

- Limited source populations
- Allocating birds to recipient sites
- Identifying “high quality” habitat
- Defining “translocation success”
- Resourcing protection of large areas of high quality habitat

There are some who can live without wild things, and some who cannot. These essays are the delights and dilemmas of one who cannot”

-Aldo Leopold 1949