



Manaaki Whenua
Landcare Research

Factors leading to successful island rodent eradications

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Successful island rodent eradications



Version: DIISE, 2018

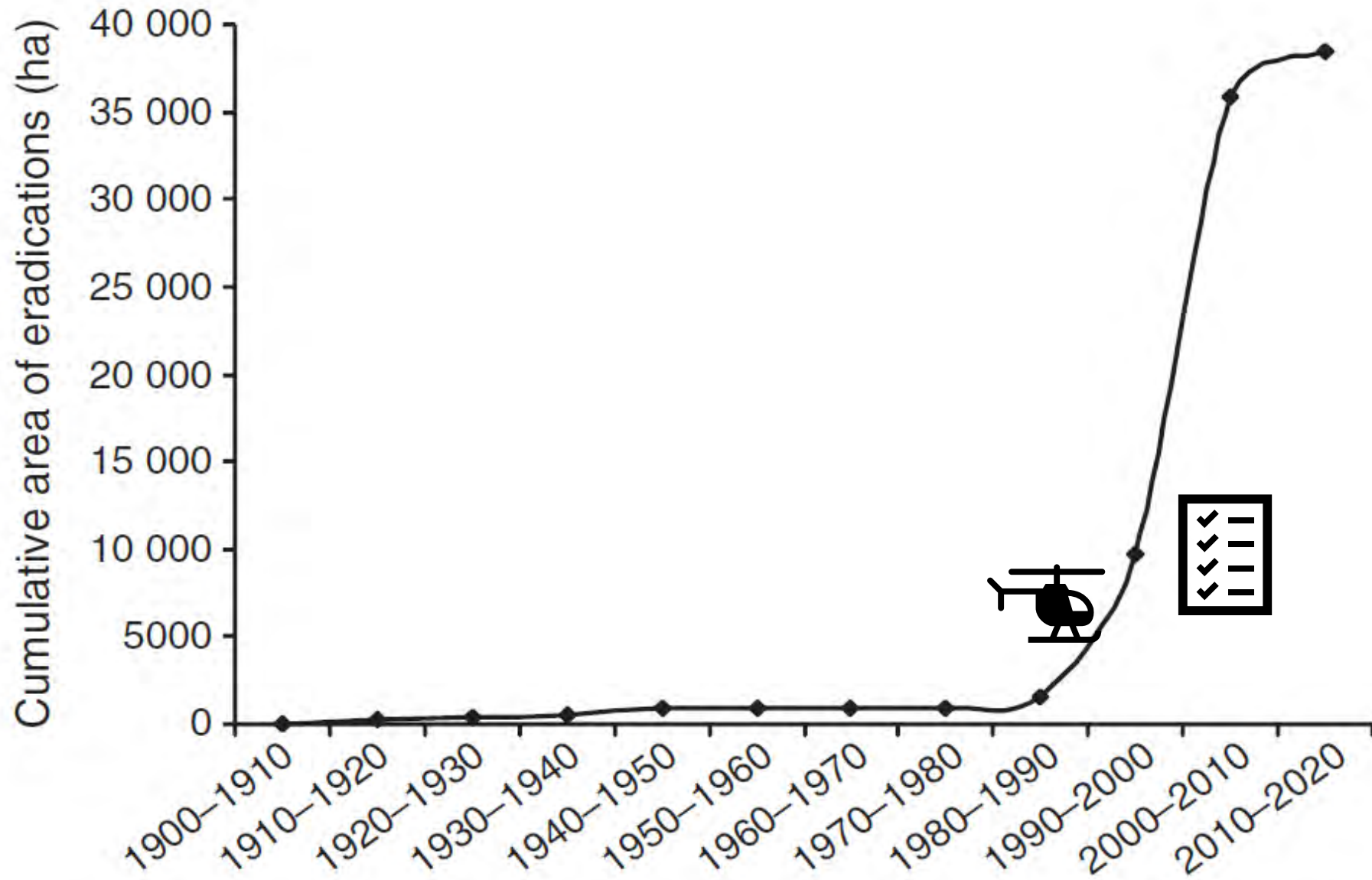


Fig. 3. Cumulative area of successful eradications by decade on 100 New Zealand offshore islands for which eradication dates are known.




Technology



Eradication theory

- ✓ Eradication principles
(Parkes 1993, Cromarty et al. 2002)
- ✓ Best practice
 - Aerial broadcast
 - Hand broadcast
 - Bait stations



● Eradicated:  60 populations on 39 islands
▲ Pending **100% success!**



The only job I've had!
20 years and counting...


Project manager/consultant/conservation scientist





This is another talk...
Comes with a video!

Risks posed by rat reproduction and diet to eradications on tropical islands

Araceli Samaniego  · Richard Griffiths · Markus Gronwald · Nick D. Holmes · Steffen Oppel · Ben C. Stevenson · James C. Russell

Conclusion: eradications can be successful despite abundant natural food and high density of reproductive rats

A. Samaniego, R. Griffiths, M. Gronwald, F. Murphy, M. Le Rohellec, S. Oppel, J.-Y. Meyer & J. C. Russell /
Conservation Evidence (2020) 17, 12-14

A successful Pacific rat *Rattus exulans* eradication on tropical Reiono Island (Tetiaroa Atoll, French Polynesia) despite low baiting rates

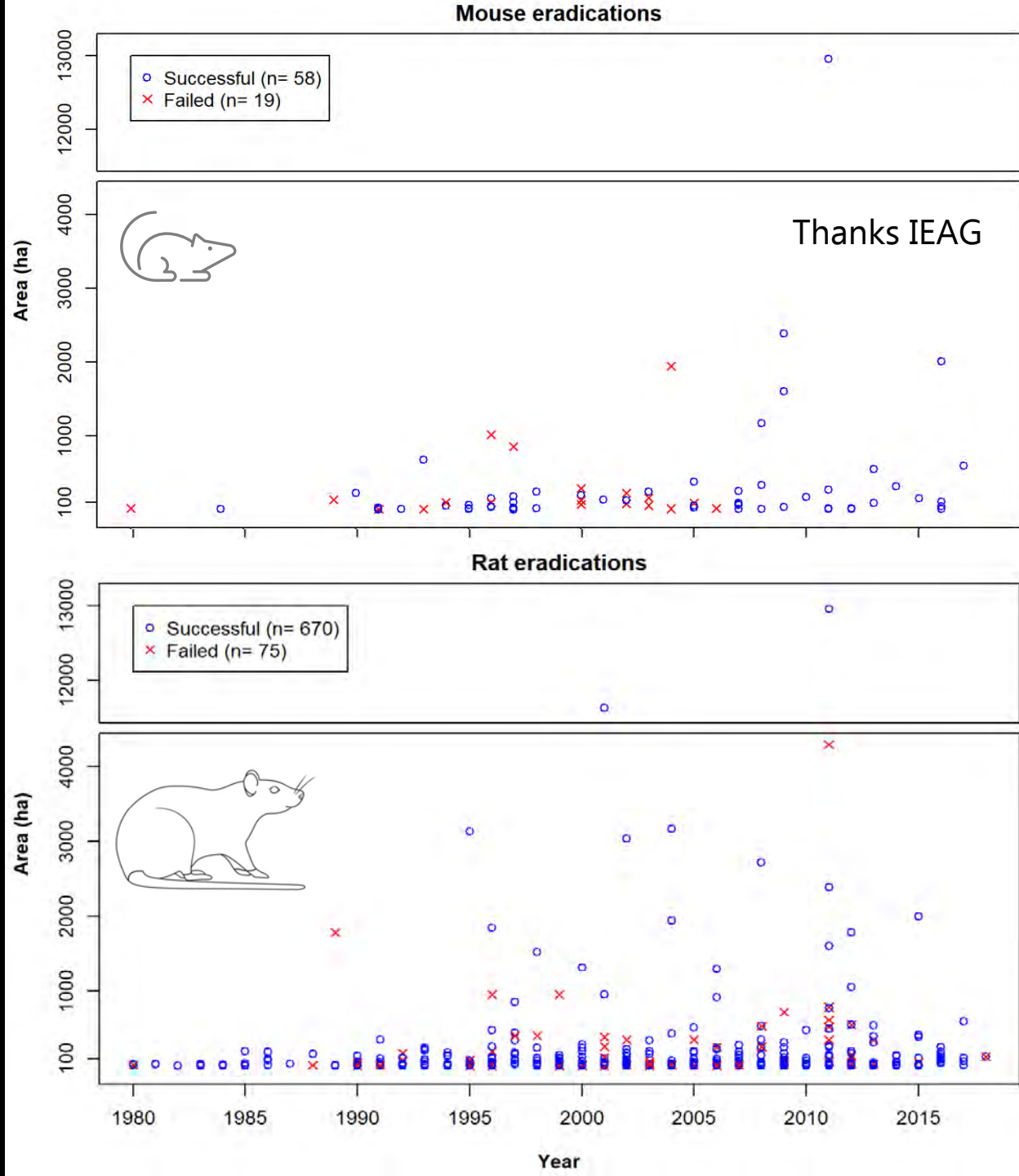
Araceli Samaniego^{1*}, Richard Griffiths², Markus Gronwald¹, Frank Murphy³, Moana Le Rohellec³, Steffen Oppel⁴, Jean-Yves Meyer⁵ & James C. Russell¹



Global eradications (1980-2018)

○ Successful

✗ Failed



REVIEW

Factors leading to successful island rodent eradications following initial failure

are we underestimating human error?

Araceli Samaniego¹ | Peter Kappes^{2,3} | Keith Broome⁴ | Steve Cranwell⁵ |
Richard Griffiths⁶ | Grant Harper⁷ | Pete McClelland⁸ | Russell Palmer⁹ |
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⁵BirdLife International, Suva, Fiji

⁶Island Conservation, Santa Cruz, California

⁷Biodiversity Restoration Specialists, Murchison, New Zealand

⁸Invercargill, New Zealand

⁹Science and Conservation Division, Department of Biodiversity, Conservation and Attractions, Kensington, Western Australia, Australia

¹⁰Island Biodiversity & Conservation Centre, University of Seychelles, Mahé, Seychelles

¹¹Canterbury, New Zealand



TRY FAIL TRY AGAIN SUCCESS

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graph LR; TRY --> FAIL; FAIL --> TRY; TRY --> AGAIN; AGAIN --> SUCCESS;
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35 eradication attempts on 17 islands (8 countries)

5 ha

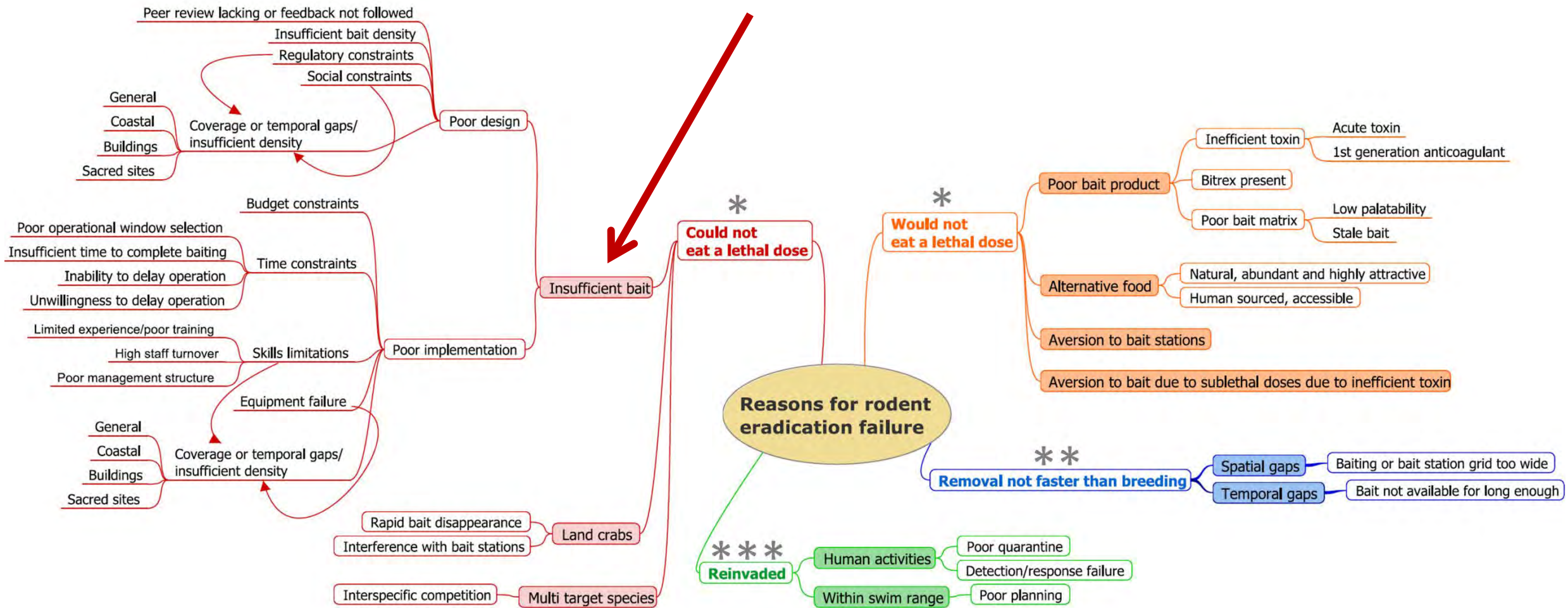


1,020 ha





D.M. Cunningham and P.J. Moors, 1996



Violations to eradication principle 1 (*), 2 (**), 3 (***)

Core eradication principles

- All target animals are put at risk by the eradication technique
- Removal exceeds their rate of increase at all densities
- Immigration must be zero in the short and long term



Initial attempt
(rainy season)

Rodriguez et al. 2006



Successful
attempt
(dry season)

Samaniego et al. 2014

Isabel Island, Mexico



Initial attempts

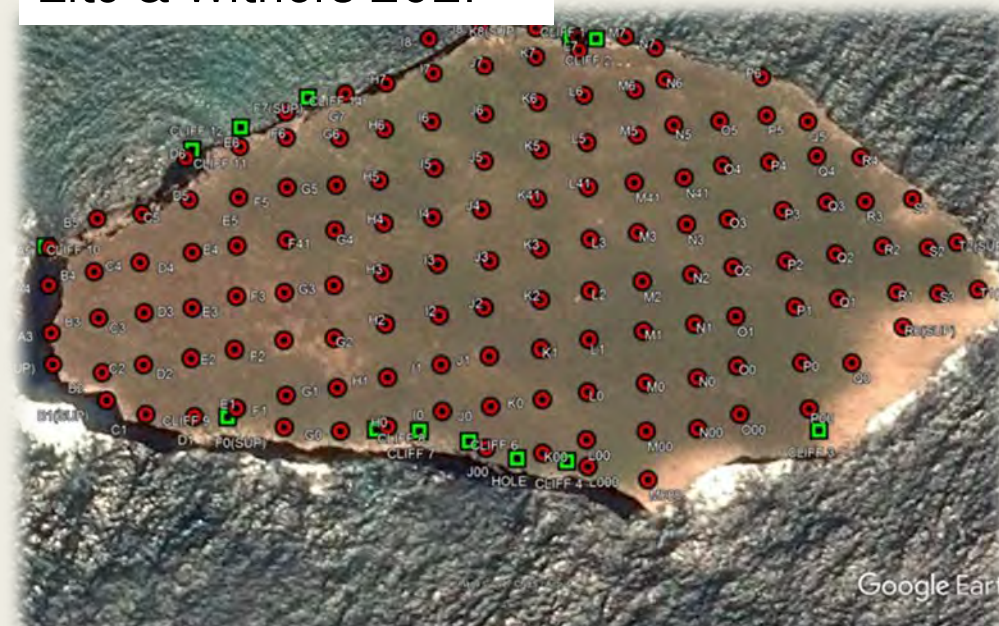
Teuaua, Marquesas, French Polynesia



2/3

Successful attempt

Zito & Withers 2017



Google Earth

Figure 5: Motu Teuaua with 140 main surface bait points (red) and 13 additional cliff bait points (green).



English

Help

My Trips

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MARRIOTT BONVOY

THE LUXURY COLLECTION

North Island, a Luxury Collection Resort, Seychelles

No street address, North Island Seychelles +248 4 293 100

VIEW RATES



1. Can operational flaws explain the failures?

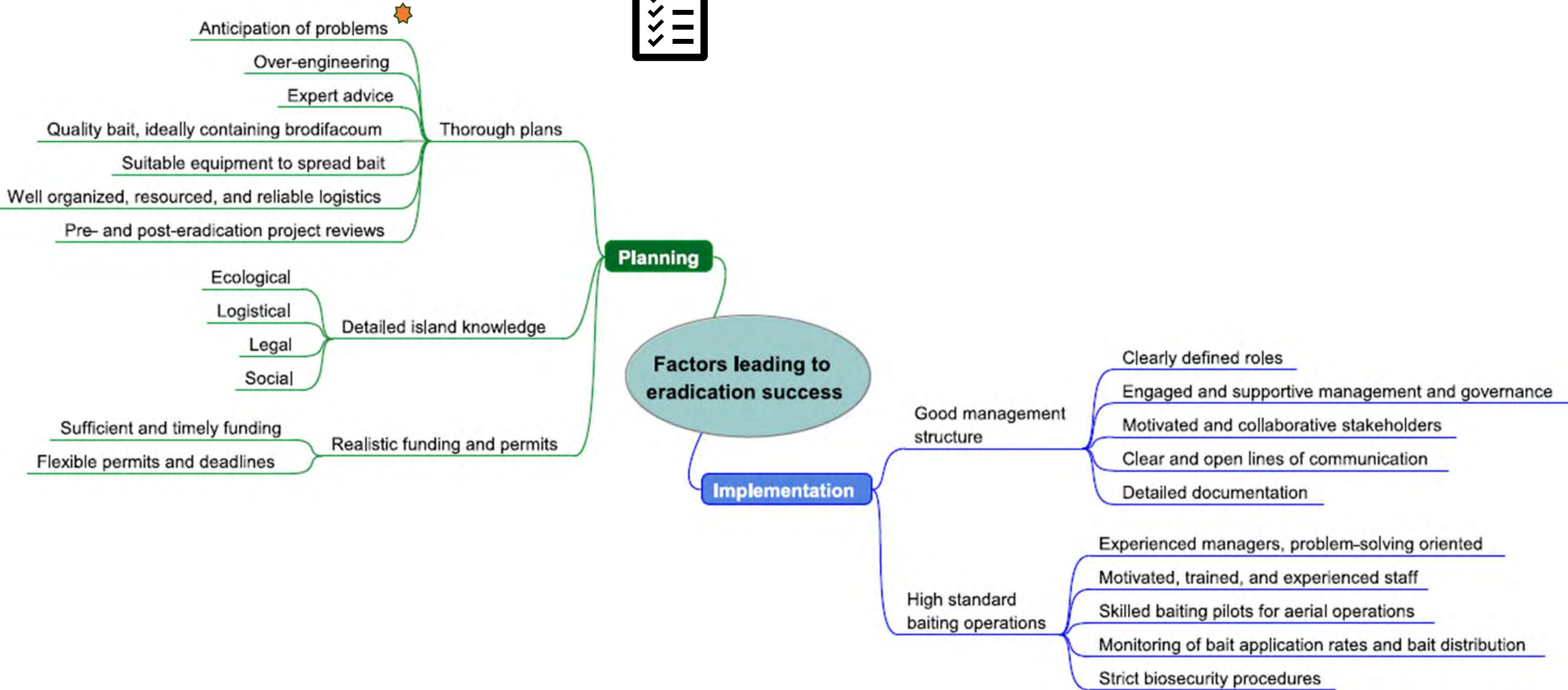
Mostly, yes

2. Can operational improvements in subsequent attempts explain the successes?

Mostly, yes

3. Is it worth re-attempting islands with initial failures?

Most definitely yes!



The Project Process Overview

Process Stages

Project Documents

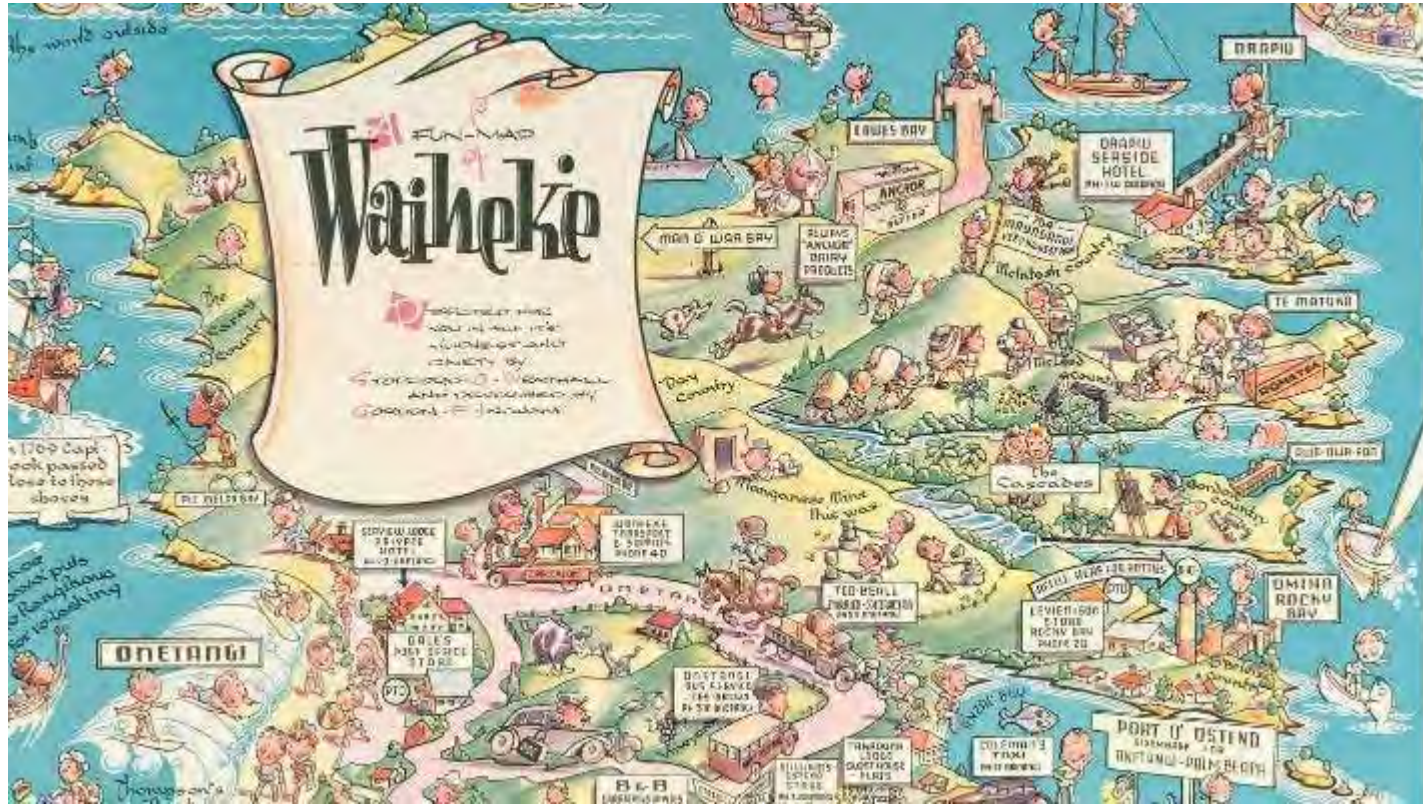
Funding

Crucial from day 1:

- Clear objectives
- Agreed terminology
- Defined stop rules



Can it be done?
What would it take?





Tēnā koutou katoa
Thank you



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