



Designing Field Experiments to Promote Urban Freshwater Pro-Environmental Behaviours

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Key Research Questions

- *Applied Question:*
 - What are the most effective levers for increasing desirable urban freshwater pro-environmental behaviours (PEBs) in Aotearoa?
- *Theoretical Questions:*
 - Can we use experiences in nature to shift environmental identity?
 - If we can, do these shifts in identity lead to changes in future behaviour?

Outline of Presentation



Overview of
research team
and objectives



Background and
important theory
to consider



Proposed
experimental
design



Challenges and
direction from
here

Biological Heritage National Science Challenge Research Team

- We sit within the Strategic Objective 2 (SO2) research team, made up of researchers from around the country with diverse backgrounds.
- Our inter-disciplinary team are:

Striving to empower New Zealanders to demand and enact environmental stewardship and kaitiakitanga (guardianship).

- The team has decided to focus on urban freshwater biodiversity stewardship behaviours (pro-environmental behaviours – PEBs).

Why Urban Freshwater Pro-Environmental Behaviours?

Few studies in literature on urban freshwater PEBs

Most people live in urban areas (World Bank, 2022)

Urban residents less involved with freshwater PEBs (MFE, 2021)

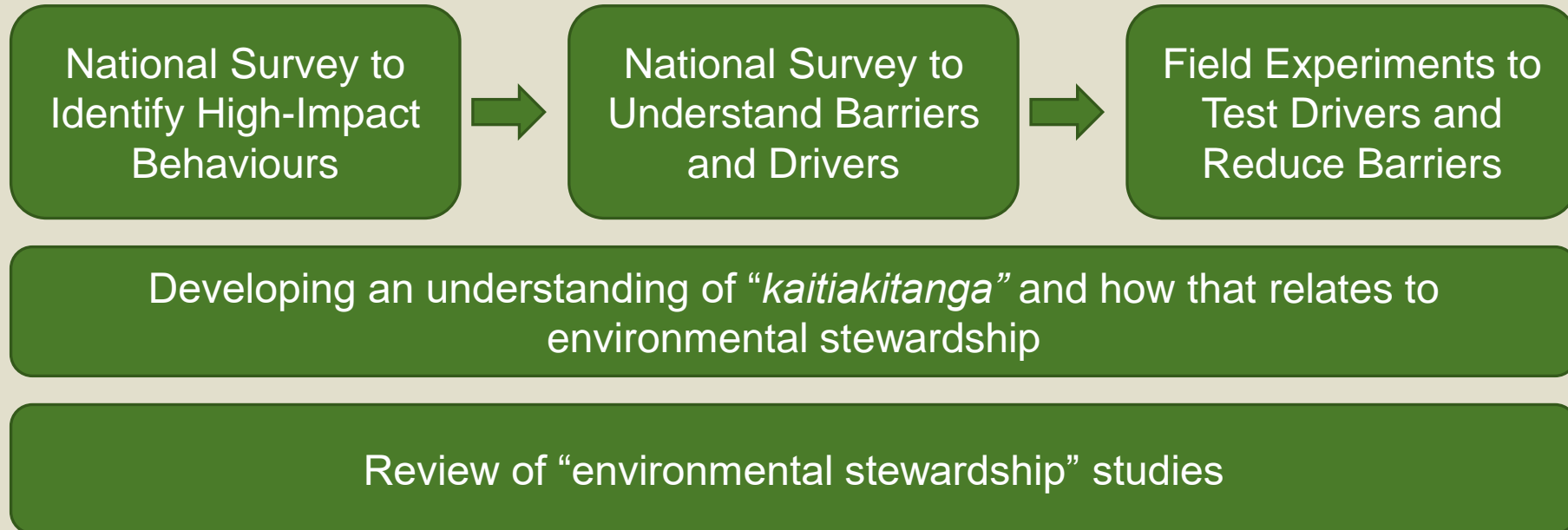
In NZ, 94% of urban river stretches are unswimmable (MFE and Stats NZ, 2020)

Source and types of freshwater pollution in cities not well understood (MFE).

Why Environmental Identity?

- Environmental identity is strongly correlated with pro-environmental behaviours (PEBs) (see, for example, Sparks et al., 2021).
- However, few studies look at “shifting” environmental identity (or identity generally – Charness and Chen, 2020).
- Strengthening identity is akin to strengthening intrinsic motivation for PEBs – this has been a key recommendation from researchers in psychology and sociology (Silvi and Padilla, 2021).
- Targeting identity and/or intrinsic motivation is more likely to lead to positive spillovers (Truelove et al., 2014).
- Experiences in nature are one way of strengthening connectedness to nature; *and* Connectedness to nature has strong theoretical and anecdotal links with environmental identity and PEBs (Balundė, Jovarauskaitė, and Poškus 2019; Rosa and Collado, 2019).

Biological Heritage National Science Challenge Research Team



Results First Survey

Table 2: Behaviour prioritisation matrix ranking the 29 complex behaviours in short-term (ST) and long-term (LT) from most (1) to least (29) impactful (based on McKenzie-Mohr, 2011).

Behaviour	Current participation (0-4)	Likelihood of adoption (0-4)	Effectiveness ST / LT (1-10)	Weighted index ¹ ST / LT	Group rank ST & LT
Report pollution in waterways	0.61	2.58	6.33 / 6.00	55.39 / 52.48	1 / 4
Restore natural channels with a group	0.20	2.04	6.27 / 7.87	48.58 / 60.98	2 / 2
Report potential fish barriers	0.41	2.40	5.47 / 7.47	47.10 / 64.33	3 / 1
Replace concrete with gravel or lawn	1.26	2.50	6.47 / 7.53	44.32 / 51.58	4 / 5
Report pests in waterways	0.46	2.43	4.67 / 5.40	40.14 / 46.45	5 / 9
Restore natural channels themselves	0.23	1.76	5.87 / 7.53	38.93 / 49.99	6 / 6
Monitor waterway health with a group	0.21	1.99	5.00 / 6.29	37.71 / 47.41	7 / 7
Increase garden / lawn area	0.58	1.91	5.41 / 6.35	35.35 / 41.50	8 / 11
Attend workshop on freshwater issues	0.35	1.83	5.27 / 6.27	35.18 / 41.86	9 / 10
Install a water tank	0.81	1.66	6.59 / 7.35	34.89 / 38.94	10 / 16

Other Considerations – Insights from Community

- Kirikiriroa gullies could be a nice area to focus on (as there are gullies all over Hamilton – in almost every suburb). Lot's of groups to choose from.
- Groups have different agendas – think carefully so we align interests and can mutually benefit.
- Groups would likely benefit from more volunteers
- Volunteers are anecdotally mostly retirees. Work and time are major barriers.
- General sense that there is a lack of awareness of groups – residents aren't aware of efforts in their own backyard. Again, opportunity to help here.

Key questions for research design

- What barriers are we targeting (2nd survey) and what are our interventions?
- How do we ensure we have appropriate control groups for each research question?
- How do we ensure the control and treatment groups don't mix?
- How do we measure spillovers? "Third" Survey?
- How do we measure environmental identity?
- Scalability?

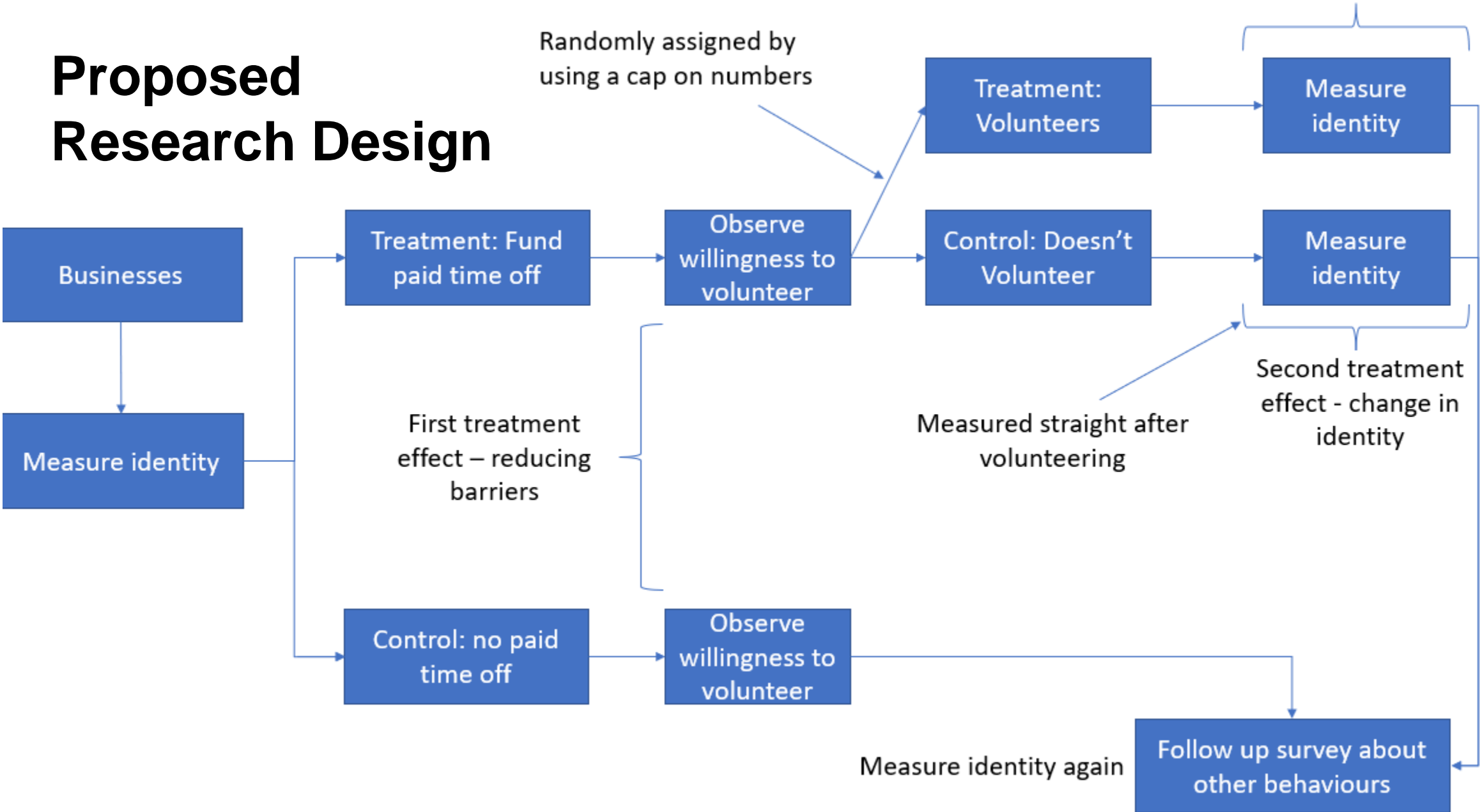


Plan A Research Design (Preliminary)

Step 1: Partnerships

- We are proposing a research design that involves partnerships from **local businesses and community groups.**
- People spend most of their weekdays at work – this is a significant time constraint. We could work with businesses to ameliorate this.
- We could co-fund businesses in providing paid time-off to their employees to volunteer with our local community group partners.

Proposed Research Design



Things to consider

- Do these research questions, methods and design speak to Te Ao Māori? Would Māori participants feel included? What can we do to improve these aspect of the research?
- Statistical power and treatment effects in the design
- How we incorporate the importance of place-based connection into the field experiments.
 - Could be controlling for this or looking at differences in treatment effects by place-based connections.
- Whether volunteering also develops stronger connection to local area (place-based identity) or neighbourhood (social identity) or workplace (workplace social identity).
 - These could all be important benefits of encouraging volunteer work and if we show effects, may result in more uptake outside the experiments (businesses on their own – increases scalability).
- Will volunteering have any impacts on participants wellbeing and can we measure this?

Thoughts, Questions
and Advice?

References

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