



**For now &
our future**

Establishing reference conditions to support habitat assessment in citizen science

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Key messages

- Promoting **habitat assessment** with catchment groups
- Establish reference conditions to support interpretation

Healthy Resilient Ecosystem = water quality + function + habitat

Establishing reference condition*

Native vegetation



Sld. n = 14271 – 22%

Strahler order



Proximity to tracks/roads



Local land cover



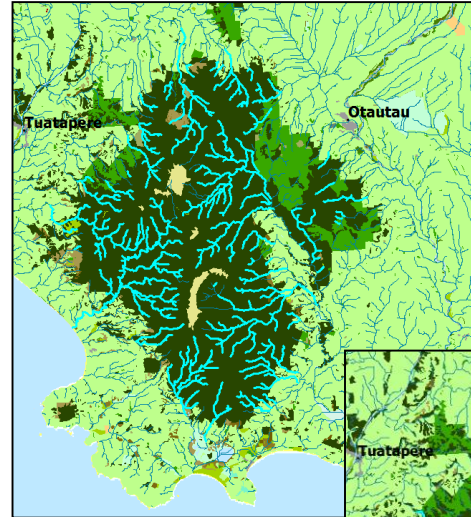
Randomised site selection



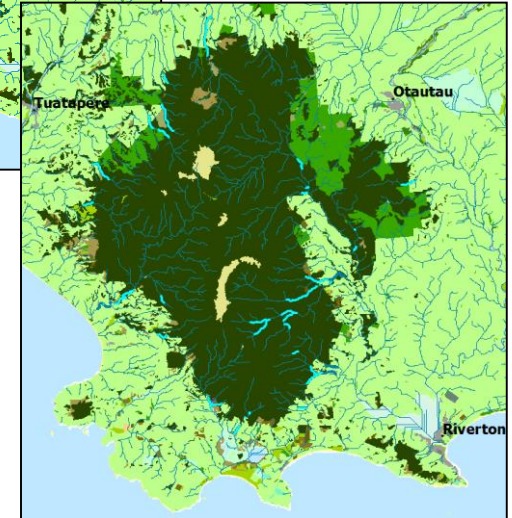
Suitability of location



Sld. n = 505 – 0.5 %

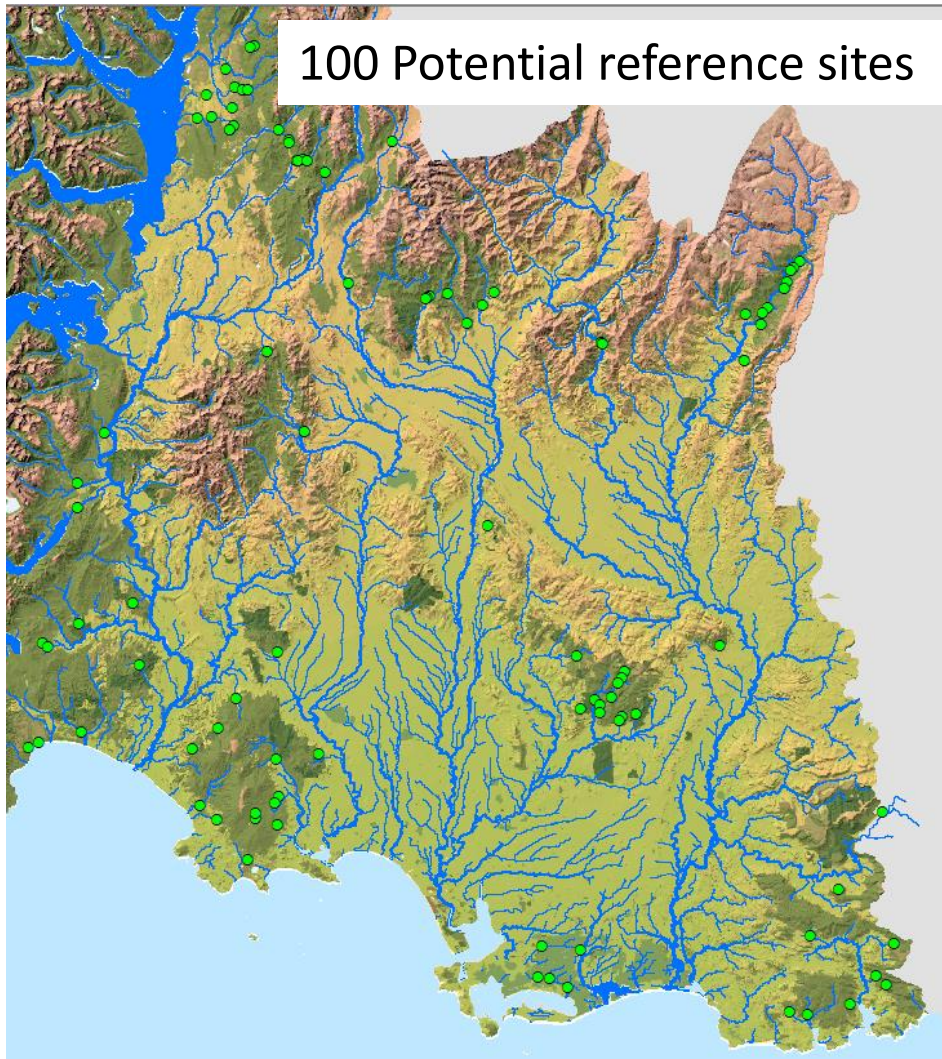


Longwood
Forest Example



*advised by Boothroyd et al., 2002 and Clapcott (February, 2016)

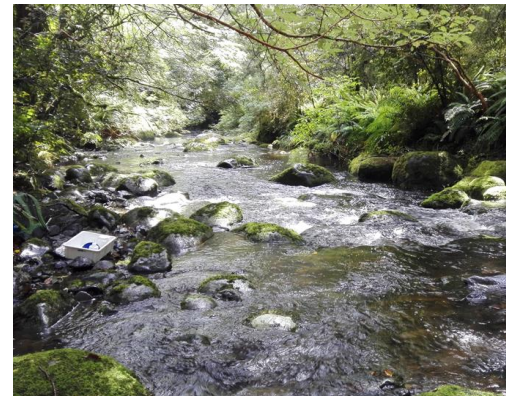
100 Potential reference sites



Tough days out

65 sites visited
38 sampled

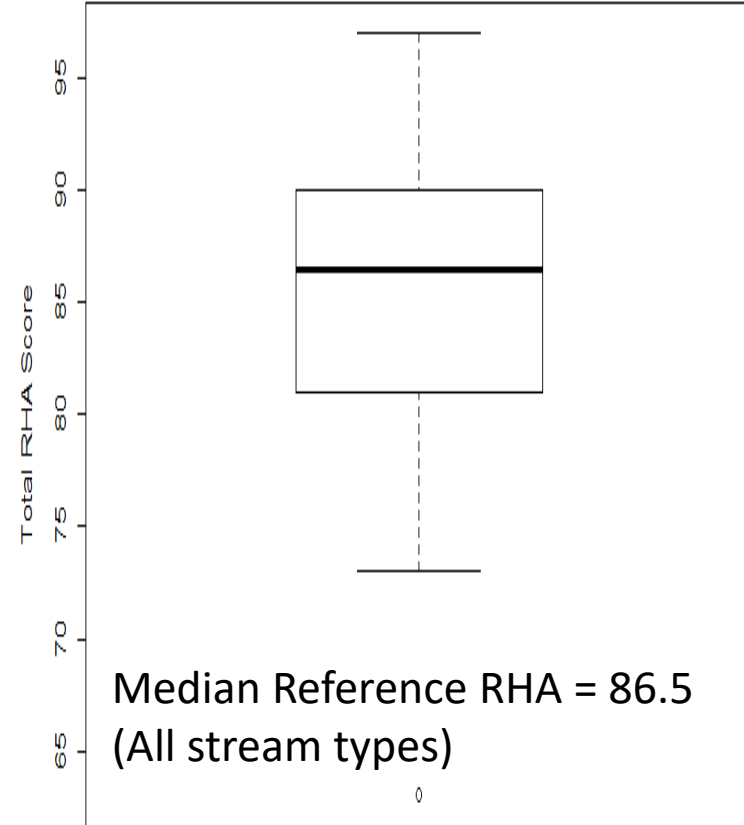
- Macroinvertebrates
- Water quality
- Rapid Habitat Assessment



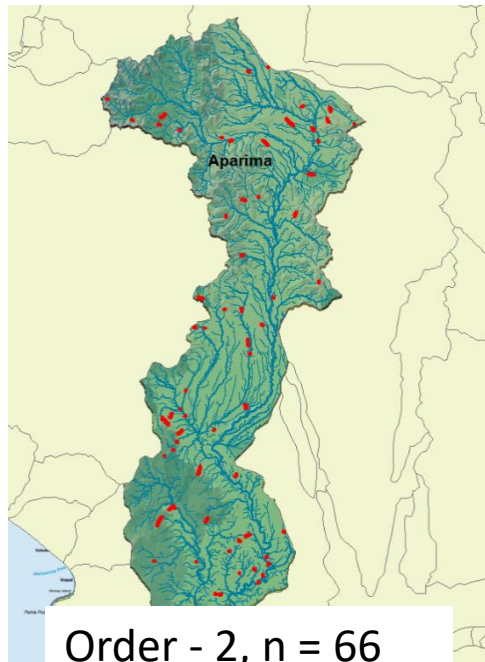
RHA scores at reference sites



High feral deer numbers



Example study design



Power analysis - choose sample size

River order	Total Number of reaches	CL = 95% E = 5%	CL = 90% E = 10%	CL = 80% E = 20%
2	3035	342	66	11
3	1516	307	65	11
4	849	265	63	11
5	284	164	55	10
6	158	113	48	10
7	303	170	56	10

CL – 'Confidence Level (%)', E – 'Margin of Error (%)'

$$\text{Proportion of reference score} = \frac{\text{Total RHA Score}}{\text{Relevant reference sites}(s)}$$

Summary

- Robust study design has potential to increase value of citizen science initiatives
- Opportunity to use Rapid Habitat Assessment
- Need to establish reference condition to support interpretation
- Proportion of reference score =
$$\frac{\textit{Total RHA Score}}{\textit{Relevant reference sites(s)}}$$

Integrating knowledge

- Reference condition challenging to quantify but relevant for interpretation and contextualisation
- Opportunities to support citizen science initiatives through study design
- Developing trusted relationships and understanding
- Catchment groups asking for RHA training