## Optimizing ecological surveys for conservation



Jeffrey O. Hanson, Jenny L. McCune, Iadine Chadès, Caitlyn A. Proctor, Emma J. Hudgins, Joseph R. Bennett

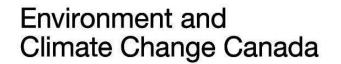


jeffrey.hanson@uqconnect.edu.au



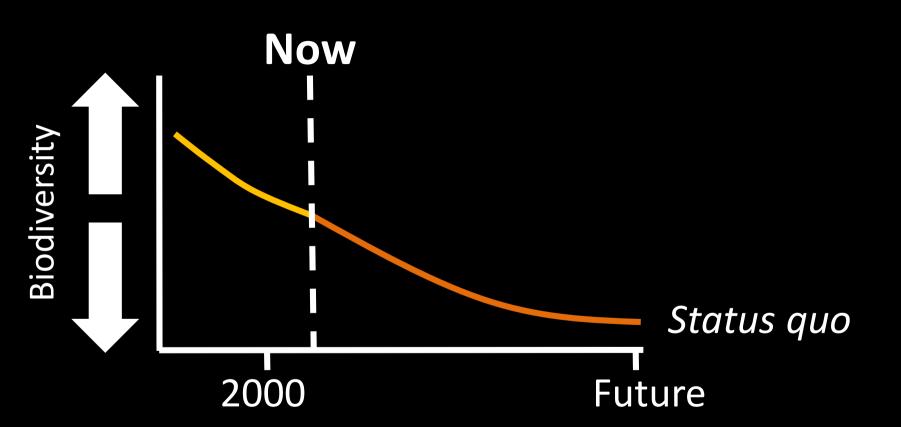
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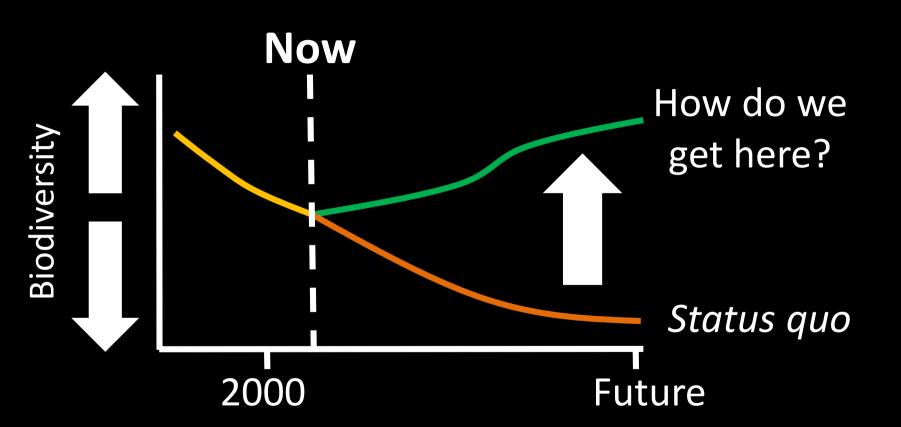


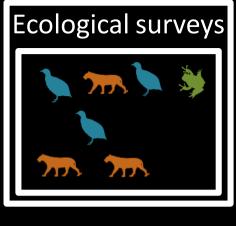


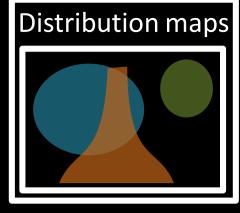


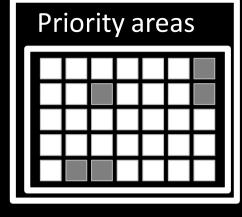


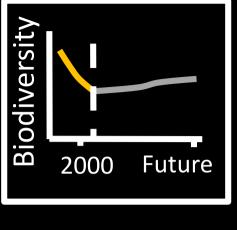


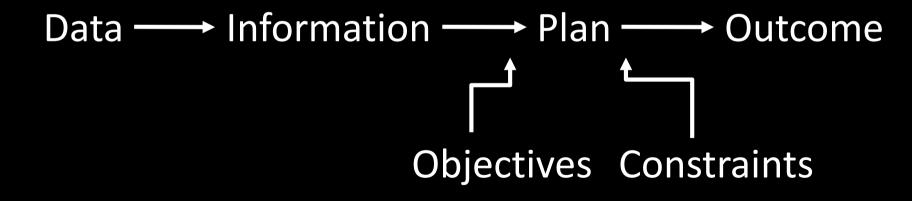


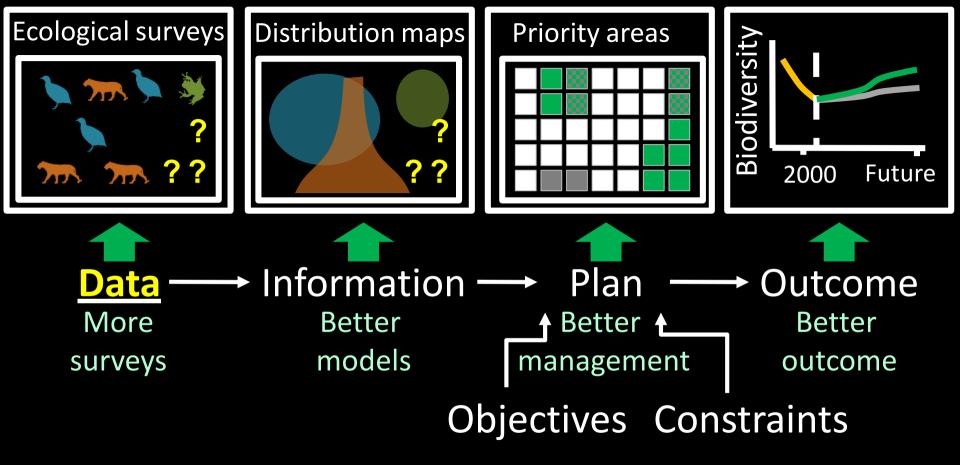


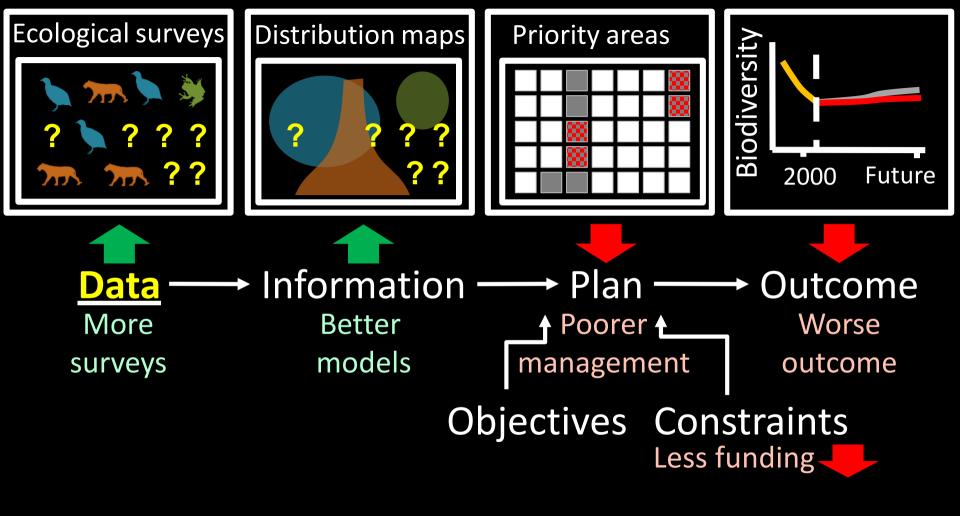




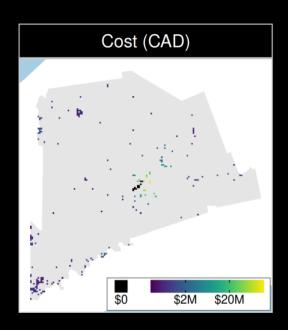




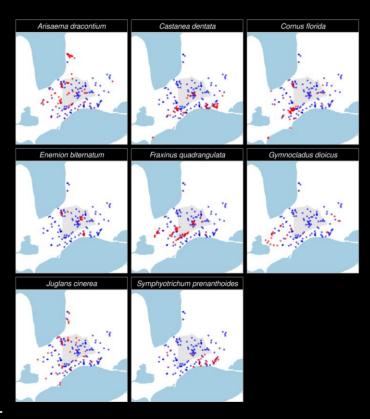




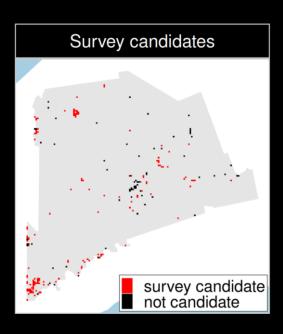
## Study system: Middlesex county, Canada



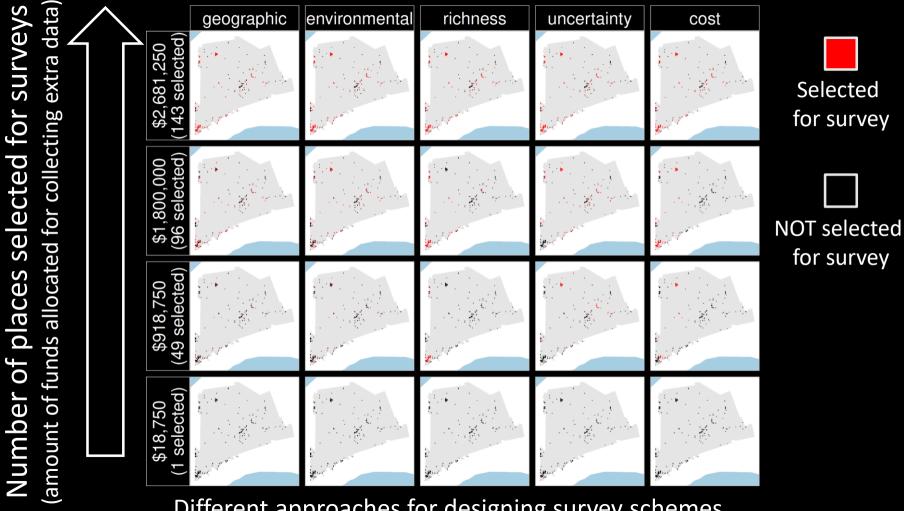
199 places that could potentially be acquired for protected area establishment



8 imperilled plant species

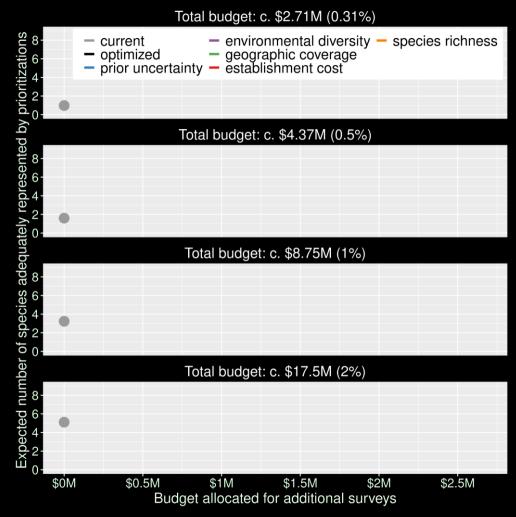


143 places that could potentially be surveyed to improve existing data

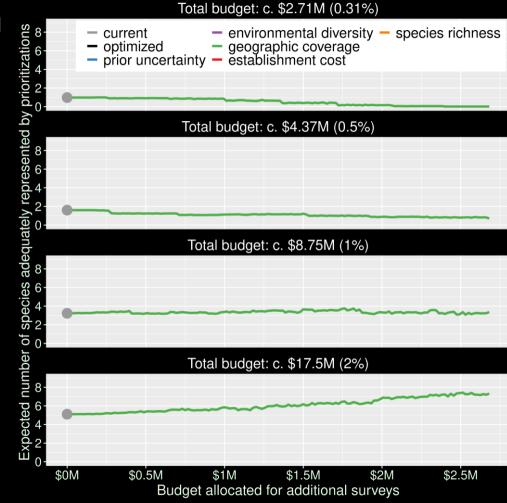


Different approaches for designing survey schemes

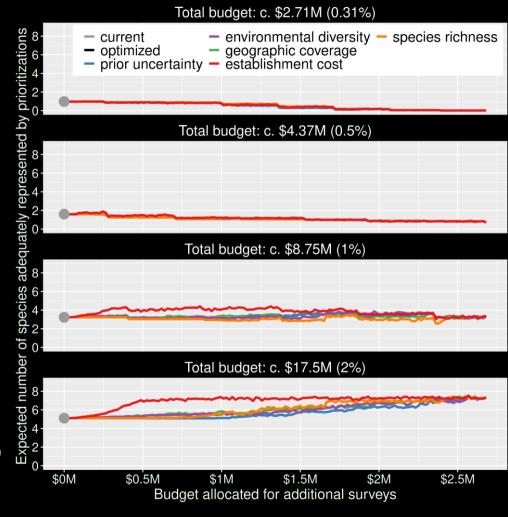
- Existing data leads to positive outcomes
- More budget means better outcomes



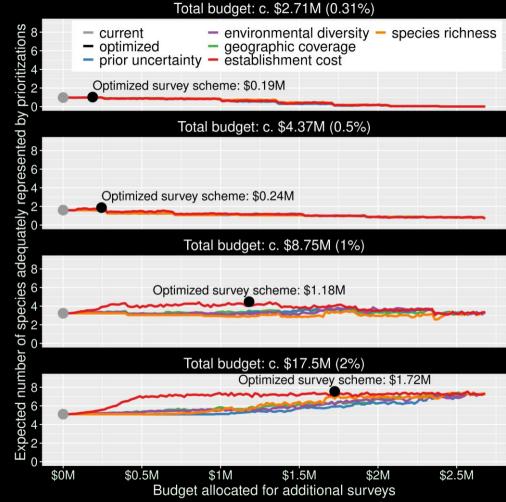
- Allocating funds for gathering more data can mean worse outcomes
- Allocating funds for gathering more data can mean better outcomes too



- Conventional approaches for gathering additional evidence have different performance
- Performance of these approaches depends on available funds
- available funds
  All of them could lead to lead to worse outcomes



- Directly maximizing return on investment is best method for additional data
- This considers objectives and constraints that underpin conservation plans and their success



## Take home messages

- 1. Don't spend too much on data collection
- 2. Survey designs that might be great for improving knowledge can be terrible for conservation
  - 3. Value of information analysis can optimize data collection to improve management outcomes
    - 4. surveyvoi R package at https://prioritizr.github.io/surveyvoi

# More data is not always better



