Exploring an Emerging Interdisciplinary Process: Social and Ecological Assessments of New York City Park Natural Areas

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Introduction

Baseline conditions of urban ecological communities are often understudied, making effective management decisions difficult. Some institutional structures maintain disciplinary silos that limit or prevent knowledge sharing among groups and institutions. New models of networked and hybrid governance are needed to manage natural resources under dynamic conditions, particularly in urban areas where diverse constituencies reflect shared, layered, and conflicting values toward urban nature. As researchers at the New York City Urban Field Station, a partnership of the USDA Forest Service, New York City Parks & Recreation, and the non-profit Natural Areas Conservancy, we reflect on the development of social and ecological assessments for NYC parklands' natural areas and how these two efforts are being integrated.

Social Assessment of NYC Parks: Examining park users' activities and park meaning through user counts, measures of human use on the landscape, and interviews. Data are collected for zones within each sampled park, including natural areas. 44 parks were sampled.

Ecological Assessment of NYC Parks' Natural Areas: Examining natural area conditions through plot-based methods. Data are collected at a plot level within natural areas. All natural areas in NYC Parks were sampled.

Research Questions

What enables or supports social-ecological integration in applied research?

What are the processes and mechanisms involved?

Methods

- Qualitative analysis
  - Participation observation
  - Meeting notes
  - Fuzzy cognitive modeling (FCM) workshops in 2015
  - Semi-structured interviews of 11 social scientists, natural scientists, and resource managers, all involved with the NYC Urban Field Station
- Dual coders established initial codes and definitions, coded a sub-sample of text, compared coding results, and revised codes and initial coding to facilitate agreement.

Themes Supporting Integration

Communication "That is why we should collect both EA [ecological assessment] and SA [social assessment] data - to make sure we are talking to each other. To ask questions…"

Specialists and Spanners "Having people with shallower / broader knowledge bases in each area but can also make connections and really drive hypotheses."

Respect / Openness

Goals "Depends on goal – it needs to be defined from the beginning. Defining the system takes time, but must be done. What are the goals? Being clear is important. "

Trust

Integrated Thinking "Success should not be [judged on] about 'integration.' I would like to see integrative thinking."

Challenges for Integration

Scale

Disciplinary Boundaries "[A challenge is] differing thinking about the same things."

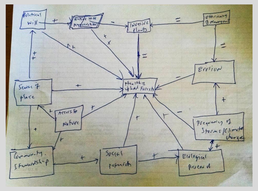
Framing "[The assessments were] conceived of separately, not together, which is a key problem. It would have been better to have both field crews integrated and go out together."

Resources

Parity "We [the social assessment and ecological assessment components] never yielded to each other in an equal way. Now there's just a nod toward the social…".

Truth vs belief "There's a history of hypothesis driven, positivist science that is still more dominant on the biophysical side…"

Urban Forest conceptual model drawn at a FCM workshop



Themes of Change

Transformation / evolution "We have made a perpendicular shift in the way people think. Asking questions and continuing to talk about it with our colleagues will hopefully inform their longer term change."

"After the second year, it felt much more of an integrated project – we were working together more as an integrated team."

Conclusions and Next Steps

Participants identified a number of supporting components and barriers to integrating social and biophysical sciences. These components can be structural (scale, resources), relationship-oriented (trust, respect /openness, communication) and conceptual (disciplinary boundaries, truth vs belief, and integrated thinking). Also apparent was an evolution of individuals' thinking and perception of integration over time.

A *fuzzy cognitive modeling process* impacted knowledge exchange beyond typical face-to-face meetings, suggesting such efforts can facilitate integration of both social /biophysical science perspectives, and also researcher and manager perspectives. Future work will examine outcomes of this process.

Acknowledgements

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