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Mapping Coupled Social-Ecological Systems in Puget Sound: Lessons from Paired Social and Biophysical Data

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Paired data: the social survey

• 1,980 random-digit dial (RDD) telephone surveys with residents of 6 Puget Sound counties

• Aggregated by zip code

• 45 question survey related to social and environmental concerns in the Puget Sound region
Survey question topics

• Environmental and social concerns
  Perceptions of the seriousness of different Puget Sound issues

• Knowledge and attitudes
  Environmental knowledge and attitudes about management options

• Trust
  Levels of trust for sources of information about the environment

• Normative orientations
  Toward nature, business, and individual vs. states rights

• Demographic/background characteristics
Paired data: the landscape data

Imperviousness (NLCD 2006)

Imperviousness change (2001-2006)

Restoration projects
Environmental concerns of interest: “sprawl” and “loss of scenery”

- Sprawl: 53%
- Loss of Scenery: 39%

Percent reporting these as serious problems in their communities.
“Loss of scenery” as a concern: sociodemographic vs. landscape predictors

| Loss of scenery               | Coefficient | P>|z| |
|-------------------------------|-------------|-----|
| Sex                           | 0.24417     | 0.015 |
| Age                           | -0.0130206  | 0.000 |
| Education                     | 0.0012277   | 0.980 |
| Political party*              | 0.6253005   | 0.001 |
| Lived in the region           | 0.0606608   | 0.074 |
| Restoration site density      | -1.415354   | 0.024 |
| Imperviousness                | 0.0311293   | 0.809 |
| Increase in imperviousness    | 0.2896635   | 0.527 |
Mapping “loss of scenery” vs. restoration site density
Mapping “sprawl” vs. imperviousness
Interventions of interest: enforcement of existing rules and water use restrictions

- Enforce existing rules: 80%
- Restrict water use: 71%
## Rule enforcement as desired intervention: sociodemographic vs. landscape predictors

| Rule enforcement                        | Coefficient | P>|z| |
|----------------------------------------|-------------|---|
| Sex                                    | .27876      | 0.026 |
| Age                                    | -.01267     | 0.002 |
| Education                              | .08758      | 0.168 |
| Political party*                       | .9018       | 0.000 |
| Lived in the region                    | -.0710      | 0.106 |
| Restoration site density               | -1.2497     | 0.126 |
| Imperviousness                         | .5192       | 0.007 |
| Increase in imperviousness             | -1.4582     | 0.013 |
Mapping “rule enforcement” vs. total imperviousness
Mapping “rule enforcement” vs. imperviousness increase
Conclusions I: lessons from paired data

- Sociodemographic variables more abundant and better predictors of normative environmental values in the Puget Sound, but....

- Landscape variables still important, sometimes in surprising ways
Conclusions II: commensurability and collaboration

- Are social scientists always playing catch-up?

- Non-human/biophysical research vs. research with people
Questions and discussion?

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