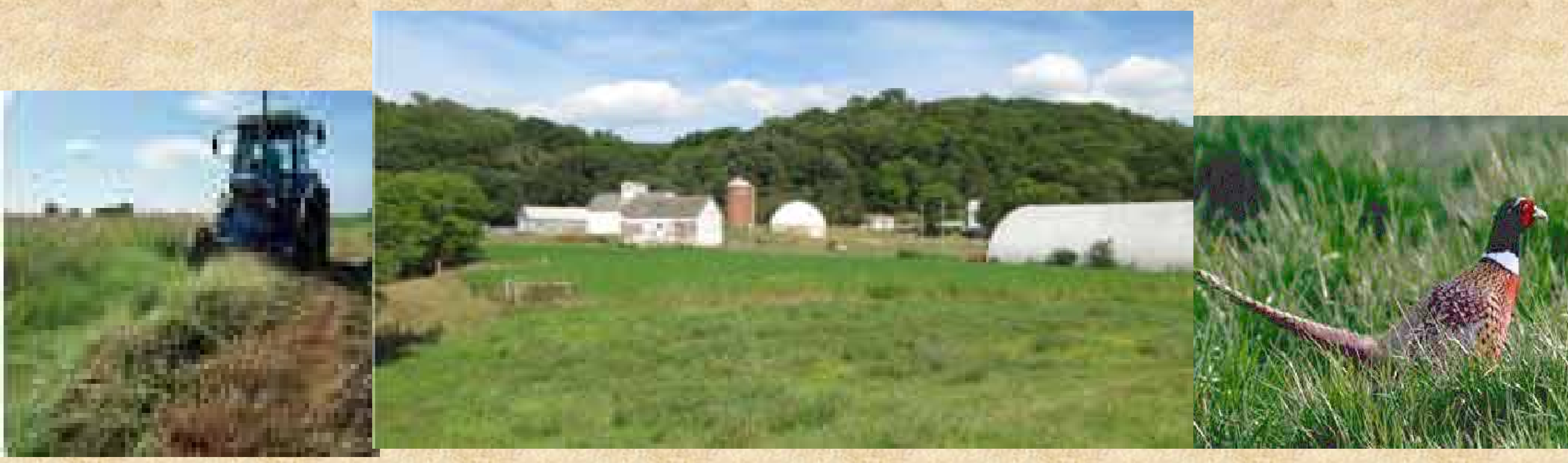


GETTING TO YES? Collaborative Landscape Design & Planning in Search of Broadly-Acceptable 'Biofuel Landscapes' for the Upper Midwest

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Multi-stakeholder landscape planning & design methods



A stakeholder group examines one of the maps produced during the collaborative planning process to identify potential resource protection areas, as well as areas suitable for urban development.

Context: Bioenergy Production in Upper Midwest Agricultural Landscapes

- Bioenergy development must align with agriculture's other functions & roles
- Failure to align: policy gridlock, delay
- Bioenergy development can't ignore:
 - Water quality & quantity problems
 - Wildlife conservation issues
 - Changing farm subsidy policies
 - Rural socio-economic distress

Guiding Vision

Use diversified perennial/agroforestry systems to produce multiple goods & services in addition to biomass

BUT...WHERE TO PUT THESE SYSTEMS? WHAT GOODS & SERVICES MATTER MOST? TO WHOM? WHY?

Project Objectives

Overall: Create & evaluate *a novel, replicable method for targeting spatial implementation* of soil, water & wildlife management practices such as perennial crops & drainage water management

Why? Enhance resource conservation & other ecosystem services while minimizing interference with production of food & bioenergy

How? Evaluate economic, social & environmental tradeoffs among alternate landscape configurations by integrating two objectives:

Develop an integrated spatial decision support framework for 'landscape scoring': evaluating production of commodities & ecosystem services in particular landscape configurations

Support multi-stakeholder landscape planning & design methods that use spatial decision support to facilitate multi-stakeholder deliberation, design and planning processes

Current Activities

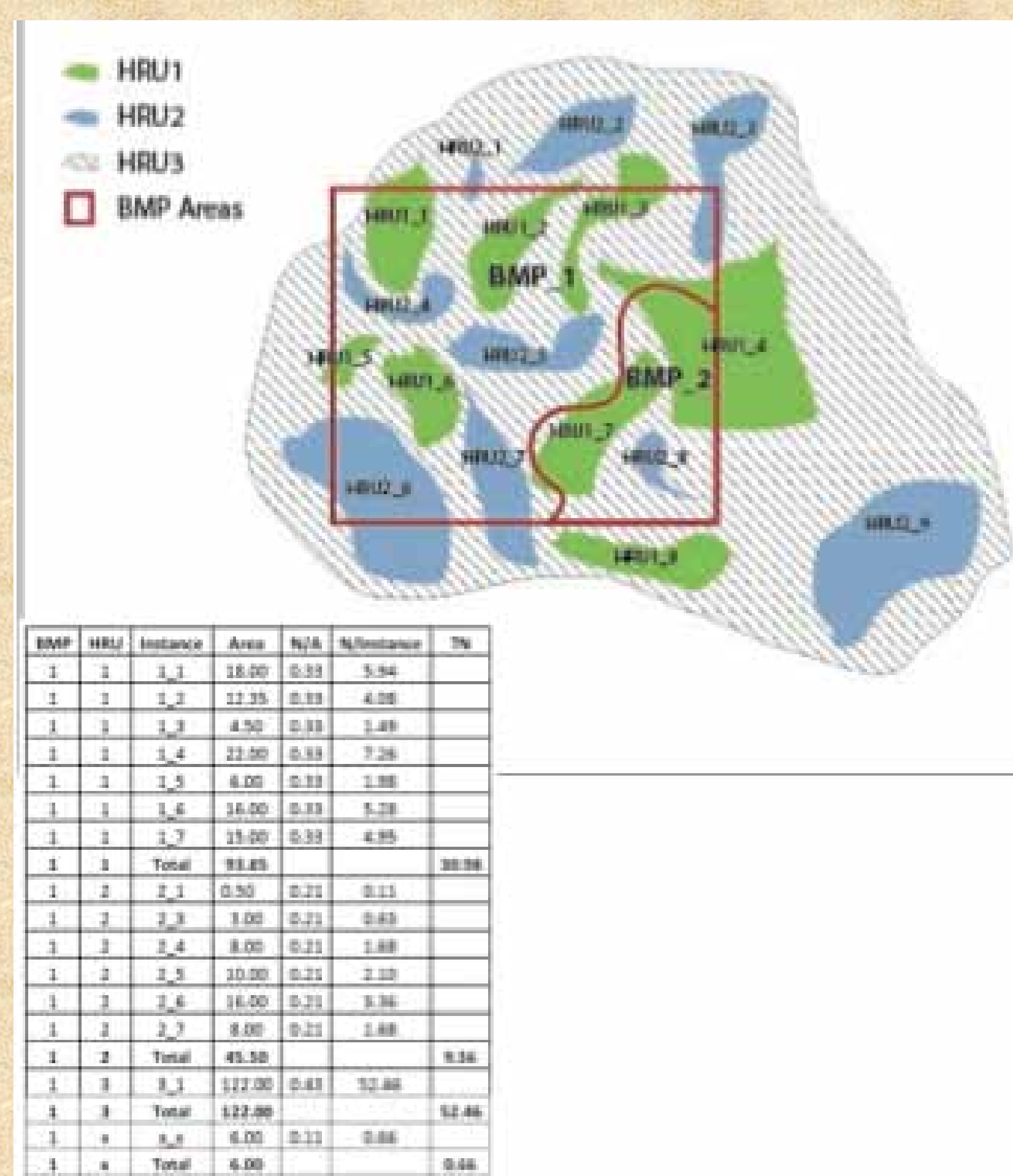
- Interview** institutional stakeholders (e.g., MN DRN, Nature Conservancy, MN Corn Growers) to identify key concerns & visions re. diversified perennial/agroforestry systems
- Model** outputs from land-use options on hydrological units in focal watersheds (Seven Mile Creek & Huelskamp Creek)
- Recruit** participants in multi-stakeholder landscape planning & design methods



Seven Mile Creek Watershed

Integrating Design with SWAT modeling

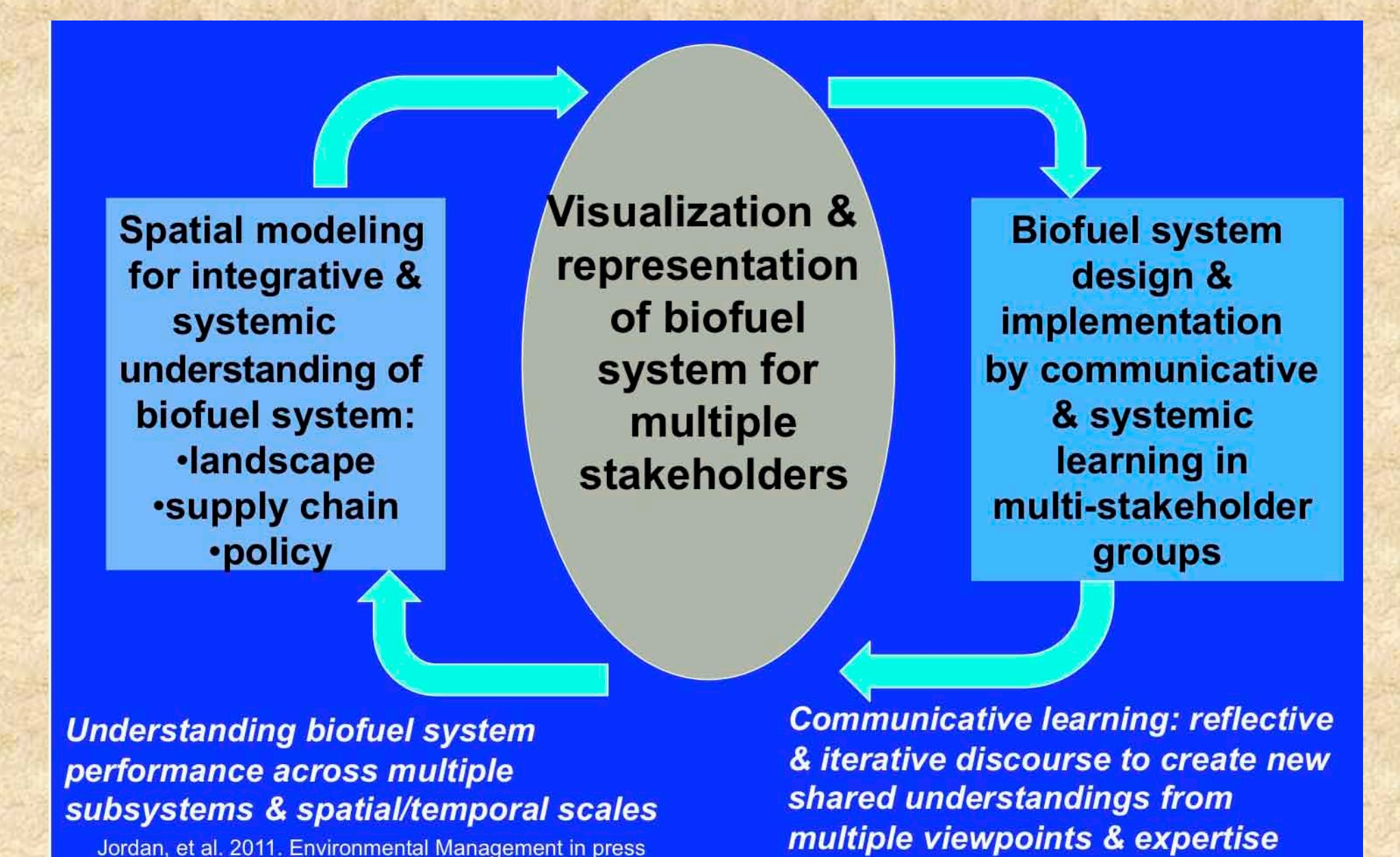
- Agricultural land-use options (BMPs) are spatially represented on landscape by hydrologic response units (HRUs)
- Outputs (crops, biomass, ecosystem services) are simulated by HRU as a function of land use.



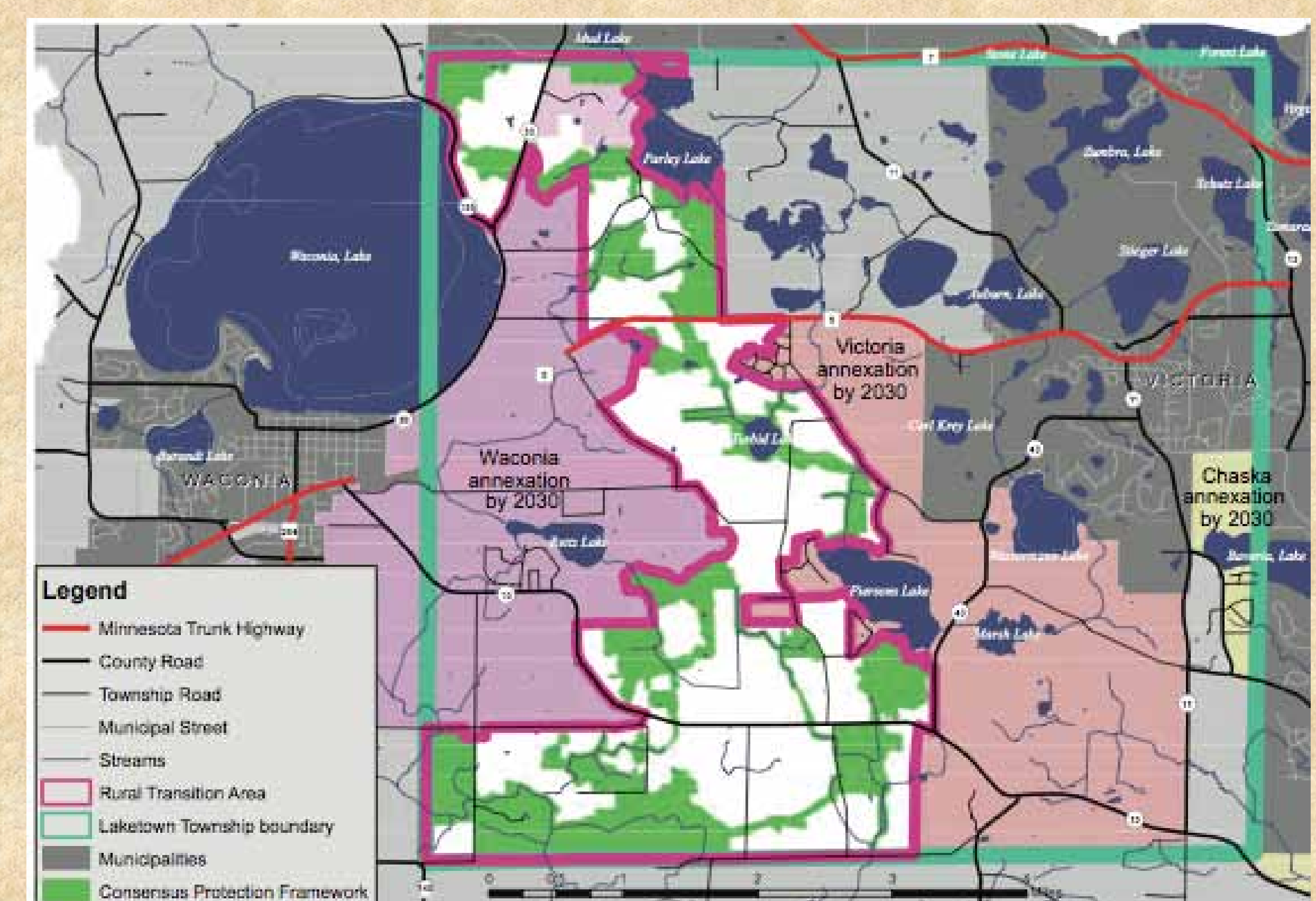
Collaborative Design & Planning

....is doing these things...together:

- Mapping important landscape features
- Dialogue about future landscape visions
- Field trips & socializing
- Creating alternative landscape designs
- Determining relative merits of designs
- Planning implementation of the best designs



Conceptual Model: Linking Collaborative Design & Decision Support



Outcome from Collaborative Design & Planning: Consensus Protection Areas (in green) from planning project in Carver Co. MN (Schively Slotterback et al. 2011)