

Zonation: A Process for Mapping Water Resource Priority Areas

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4-step process for priority area identification

1. Formulate the objective

- What conservation features are valued?
- How are the conservation features aggregated?

2. Set weights on each conservation feature

- Should reflect social valuation
- Analytic Hierarchy Process

3. Run model & hotspot analysis

- Ranks each parcel of land (30m grid)
- Generates draft priority areas

4. Synthesis

- Edit and finalize priority map and areas





1. Formulate the Objective

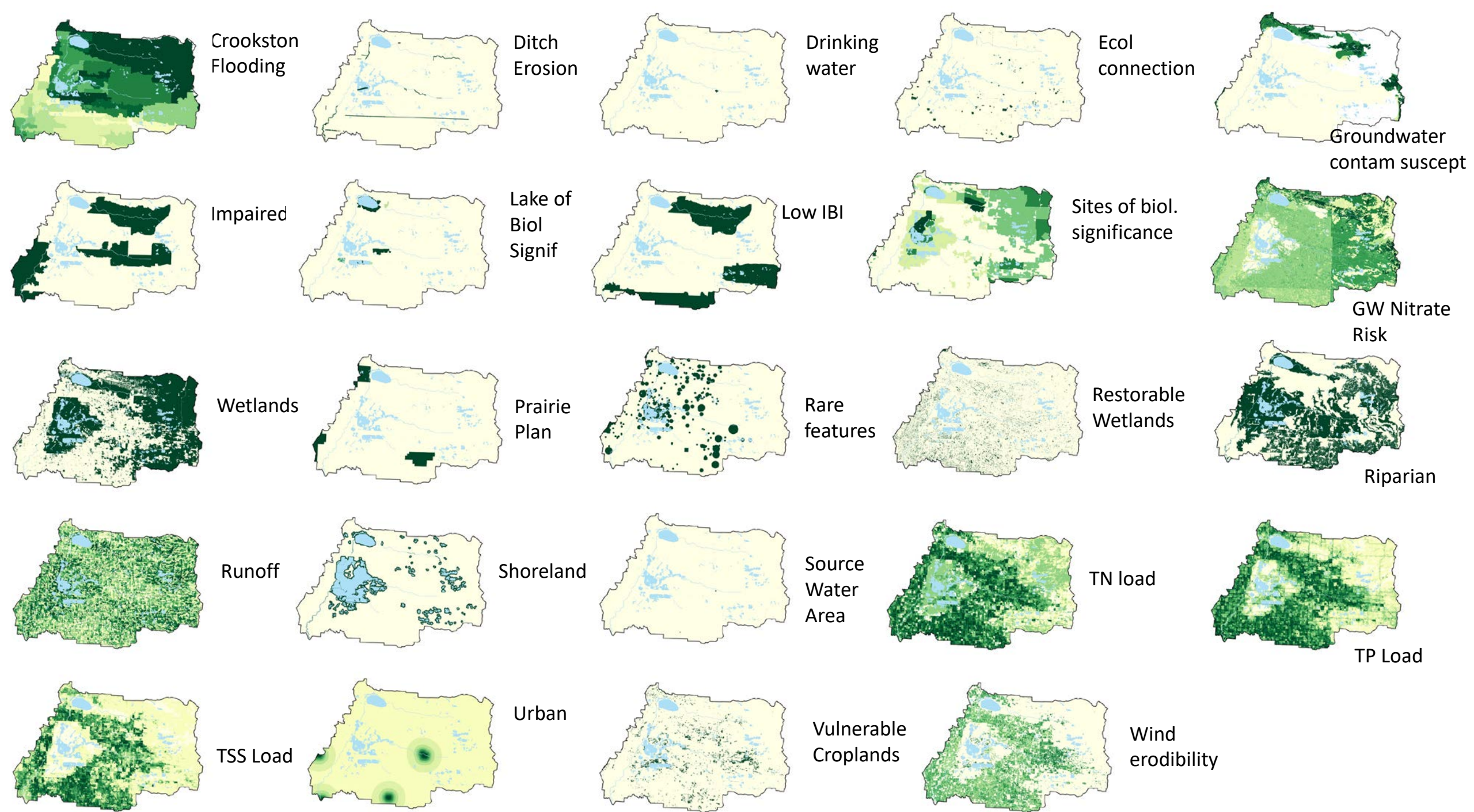
From the 1W1P process:

Identification and Prioritization of Resource Categories, Concerns, and Issues

Reduce Erosion & Runoff, Protect or Improve Fish & Wildlife Habitat, Protect or Improve Lands of Concern, Protect Groundwater

GIS data representing resource concerns and issues were compiled



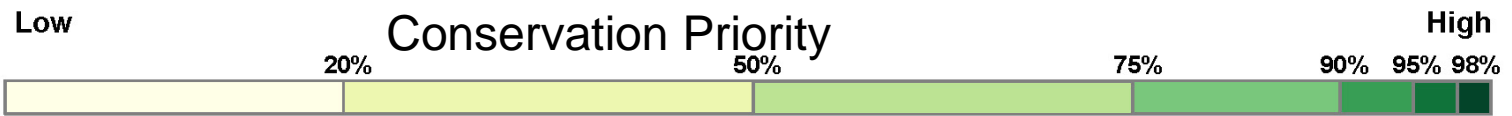
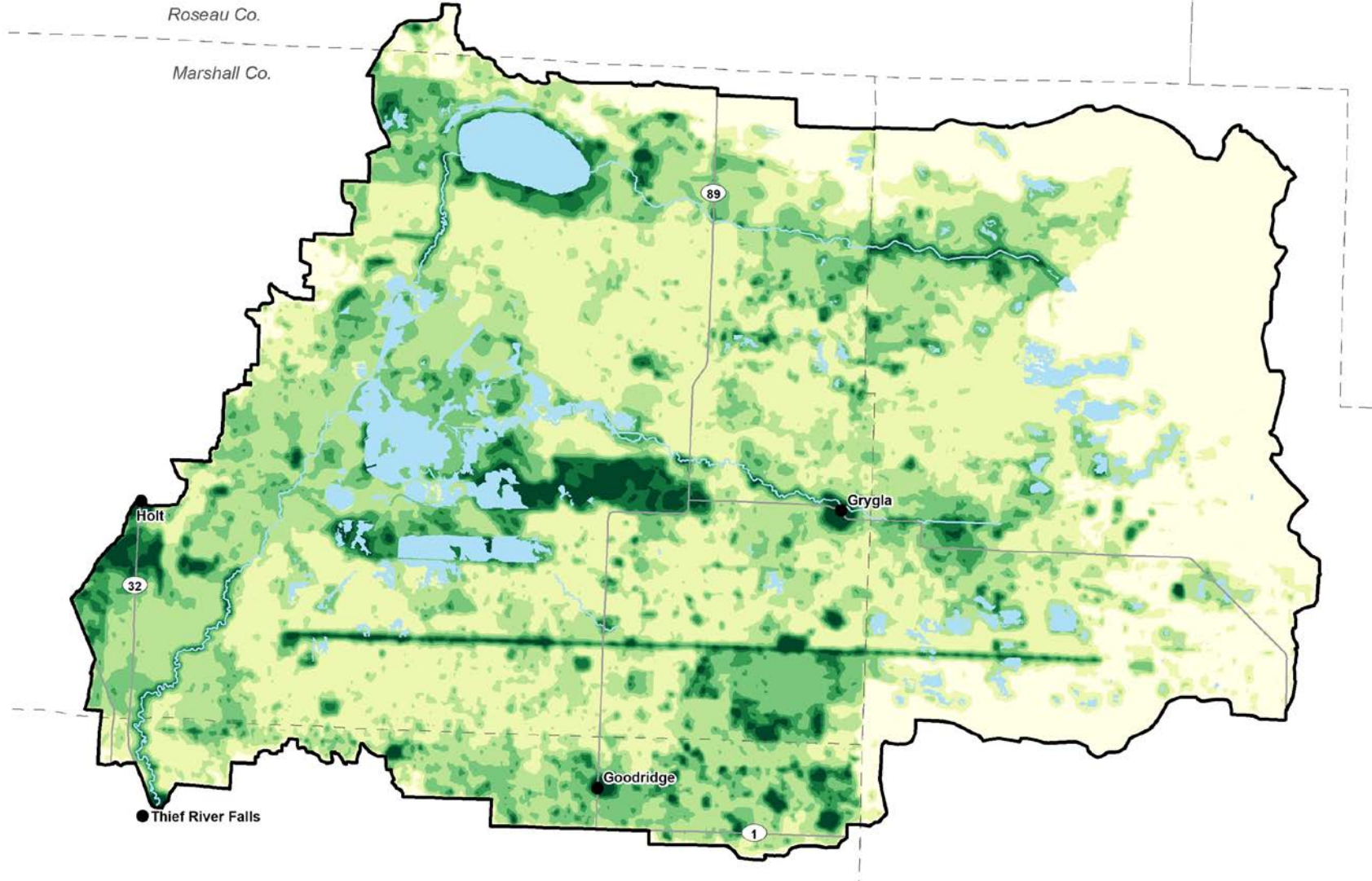


3. Apply the optimization algorithm

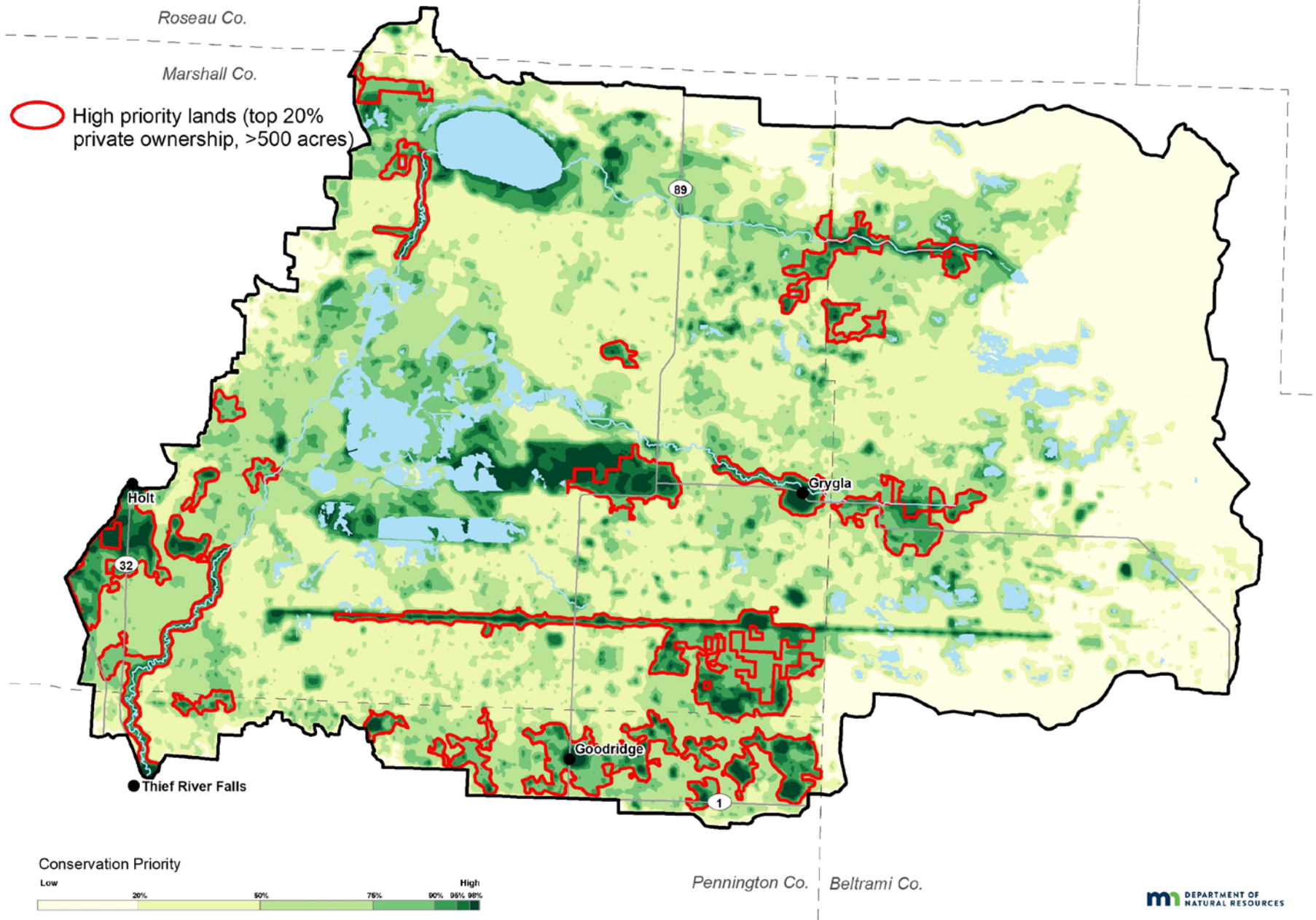
- Zonation
 - Multiple benefits objective
 - 30 x 30m grid
- Weights from Policy Committee
- Hotspot analysis



Thief River Falls 1W1P - Zonation Output



Thief River Falls 1W1P - Zonation Output



4. Synthesis

- ❑ Mapping exercise -> final Priority Map
- ❑ Incorporates wisdom of people interested and knowledgeable about watershed
- ❑ Select Priority Areas
- ❑ Start thinking of actions



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Shortcomings

- Values-based model
- Requires commitment from participants
- Framework does not provide answers
- Does not prioritize actions
- Does not acknowledge risk of failure



Benefits

- Values-based model
- Produces priority areas/resources
- Goals & process clearly defined
- Process is quantitative & transparent
- Objectively captures knowledge of location-specific information
- Framework is flexible



Summary

- Many benefits of a formal, quantitative planning framework.
- The approach facilitates an efficient, organized process to analyze spatial priorities.
- Priorities for clean water can be integrated with other priorities (multiple benefits).

