Designing Conservation Programs to Mitigate Climate Change

Catherine L. Kling
CARD, Iowa State University
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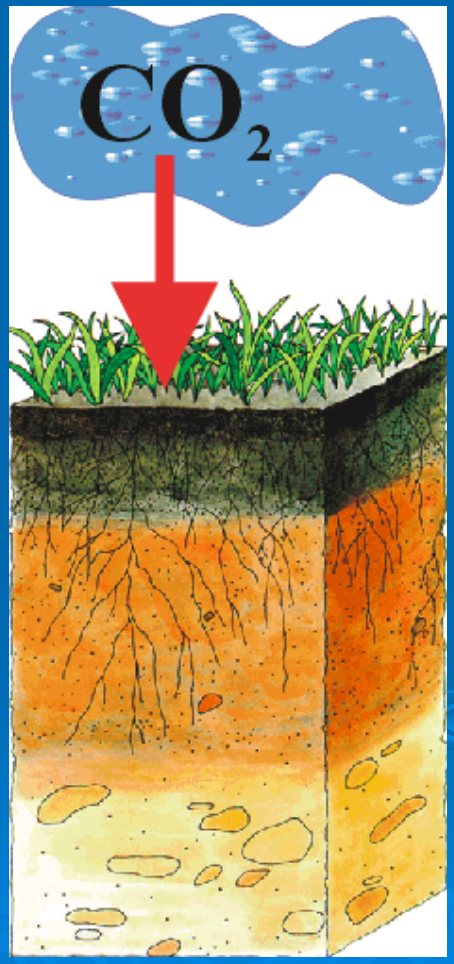
*Based on results in "Carbon Sequestration, Co-Benefits, and Conservation Programs," **Choices**, Fall 2004, Hongli Feng, Catherine Kling, and Philip Gassman*

Carbon Sequestration Practices and Carbon Markets

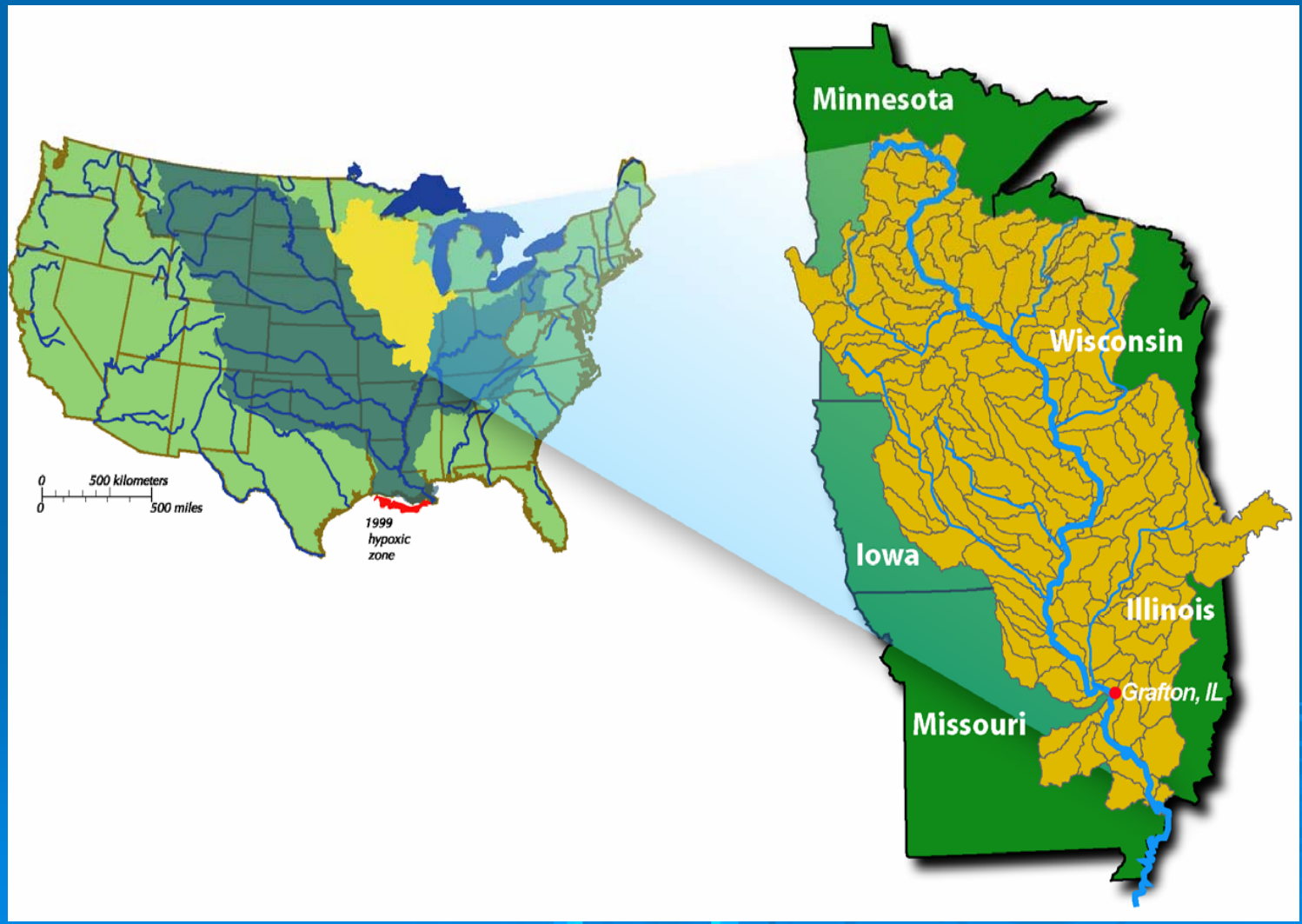
- Carbon sequestrating practices
  - Conservation tillage
  - Land retirement (grasses, trees, etc.)
  - Cover crops, changing rotations, etc
- Active discussion of involving agriculture in trading programs



Three Discussion Points

1. Agricultural Conservation Policies can potentially aid in sequestering significant amounts of carbon
2. Incorporating Carbon into conservation programs would likely create tradeoffs with other environmental goods
3. The presence of carbon markets in conjunction with conservation policies creates a number of design challenges and opportunities

The Upper Mississippi River Basin



Conservation Policies could induce significant carbon sequestration

Major Conservation Policies that Sequester Carbon

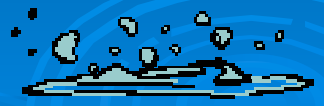
- Land retirement (CRP) $1.6 billion/yr
- Working land conservation (EQIP) $0.11 billion/yr

Farm Bill (2002) increases focus on Working Lands

- Land retirement (CRP,WRP) $11 billion/10yrs
- Working land conservation (CSP, EQIP,…) $3 billion/10yrs

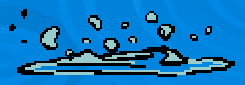
Annual carbon sequestration from land retirement in the UMRB

Policy scenarios	Carbon Sequestration (tons)
Actual CRP	1,054,000
Targeting carbon	4,141,000
Targeting erosion	988,000



2. Tradeoffs with other environmental goods

Policy scenarios	Carbon Sequestration (tons)	Erosion reduction (tons)	N Runoff reduction (pounds)	Acres Enrolled (acres)
Actual CRP	1,054,000	15,293,000	4,654,000	3,122,000
Targeting carbon	4,141,000	4,699,000	6,365,000	3,926,000
Targeting erosion	988,000	43,744,000	9,399,000	3,972,000



Distribution of selected CRP under carbon targeting

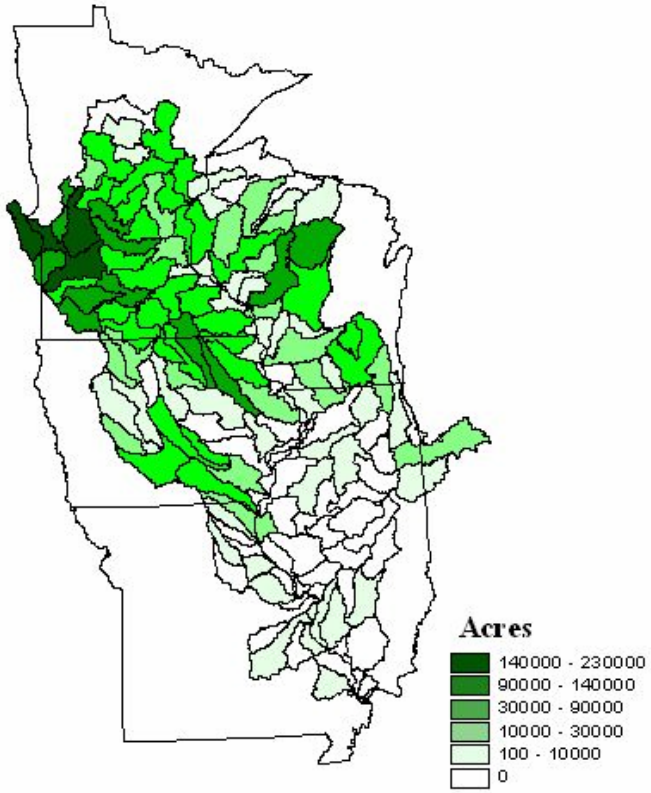


Figure 2. Area selected--target carbon

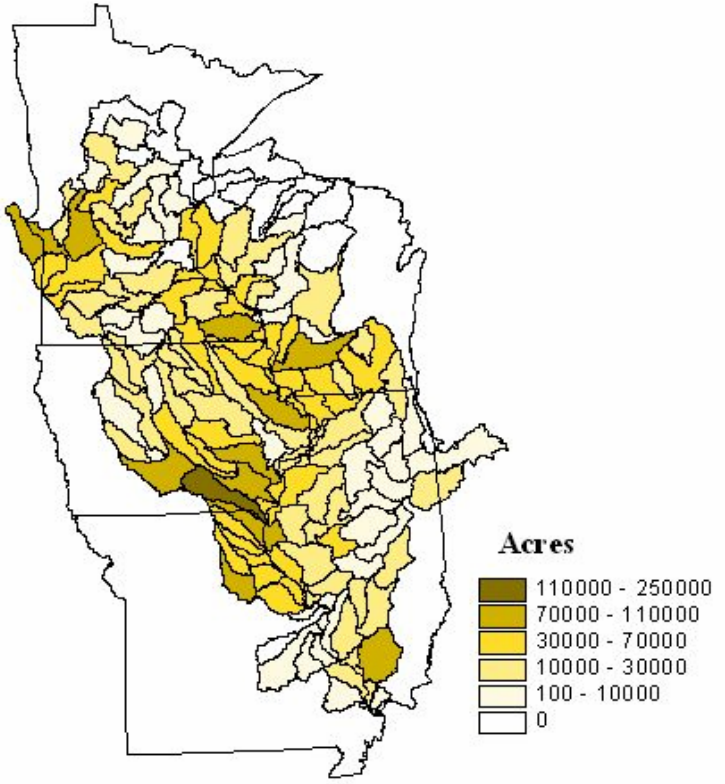
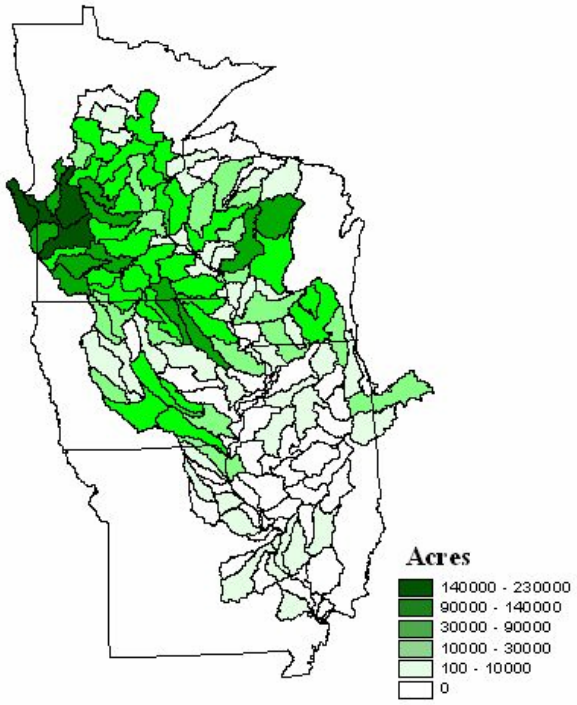


Figure 1. Area selected--the actual CRP program

Distribution of selected CRP under carbon vs. erosion targeting



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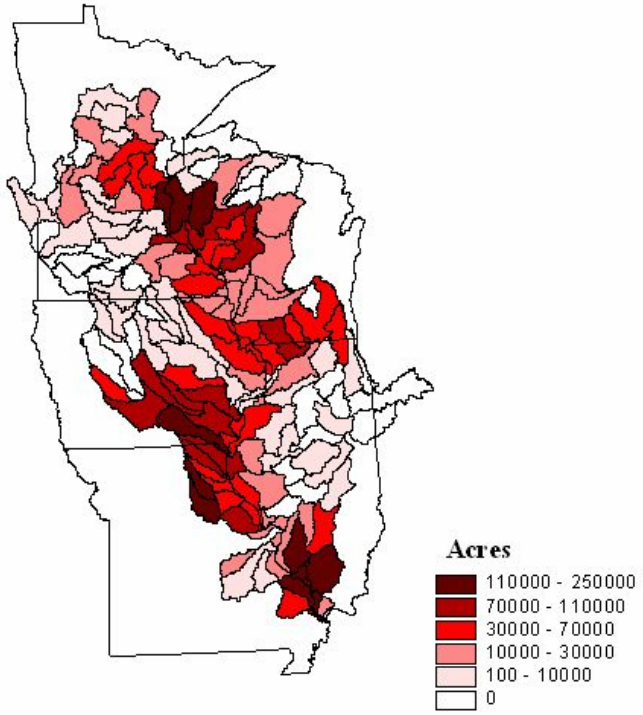

Figure 3. Area selected---target erosion

3. Simultaneous carbon markets and conservation programs that pay for carbon?

1. Double dipping?

2. Design conservation programs to take advantage of private market
   - Private funding could purchase env goods
   - Integrate other benefits into market

Final Remarks

1. Agricultural conservation policy could play key role in mitigating climate change
2. To do so may require changes that will likely reduce other environmental benefits of these programs
3. Policies could complement or compete with carbon markets, depending upon design features

For more information, please see: www.card.iastate.edu/carbon