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# *Designing Conservation Programs to Mitigate Climate Change*

*Catherine L. Kling*

*CARD, Iowa State University*

*Presented at the 2005 Agricultural Outlook Forum*

*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

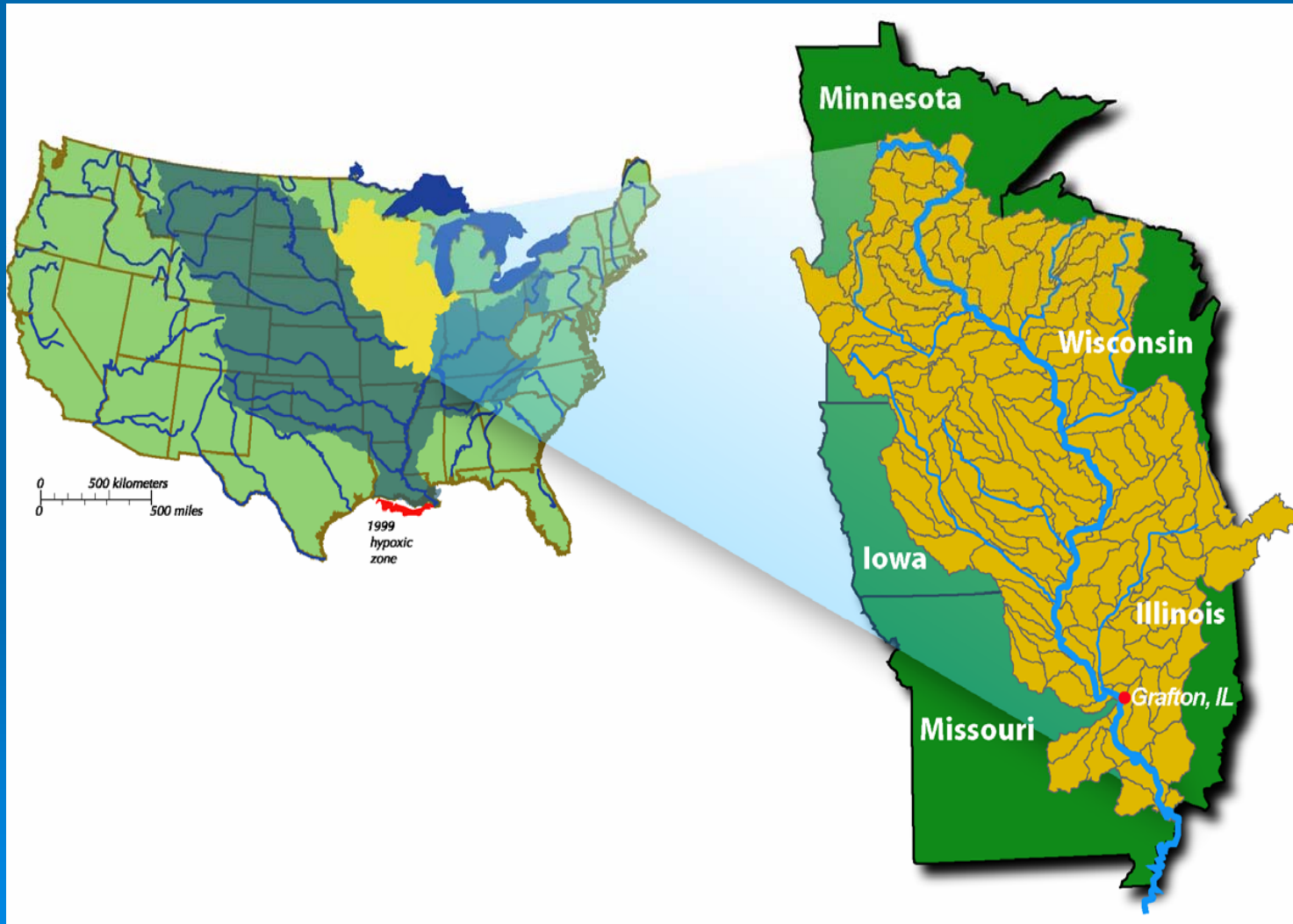
- Carbon sequestering practices
  - Conservation tillage
  - Land retirement (grasses, trees, etc.)
  - Cover crops, changing rotations, etc
- Active discussion of involving agriculture in trading programs



# 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

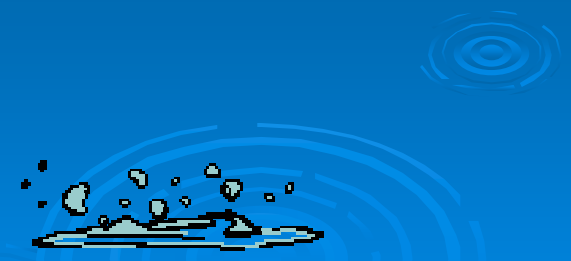
- Land retirement (CRP) \$1.6 billion/yr
- Working land conservation (EQIP) \$0.11 billion/yr

## 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

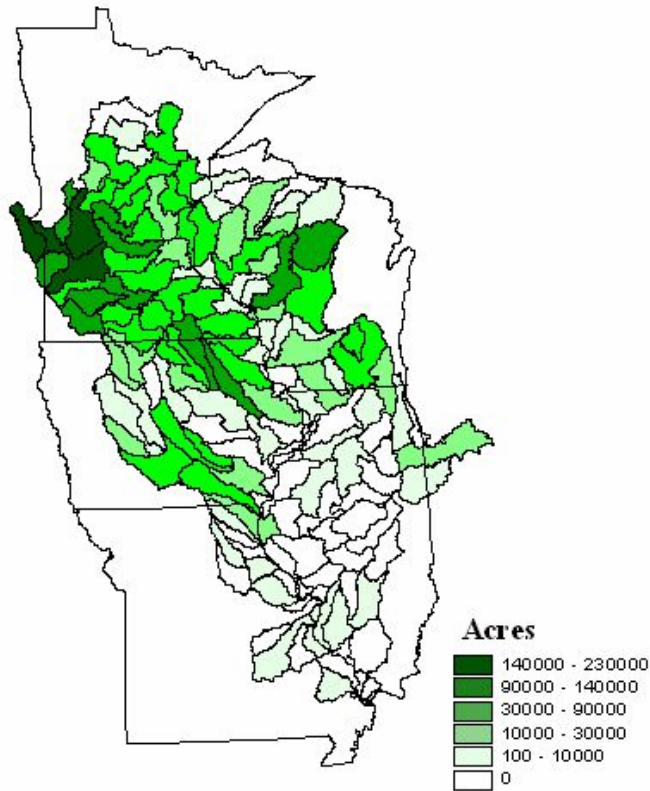


Figure 2. Area selected--target carbon

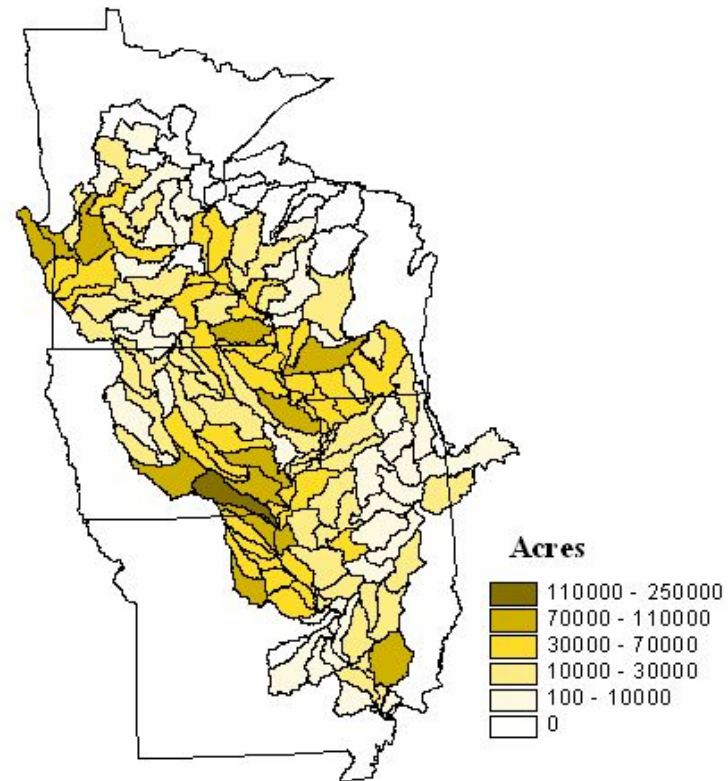
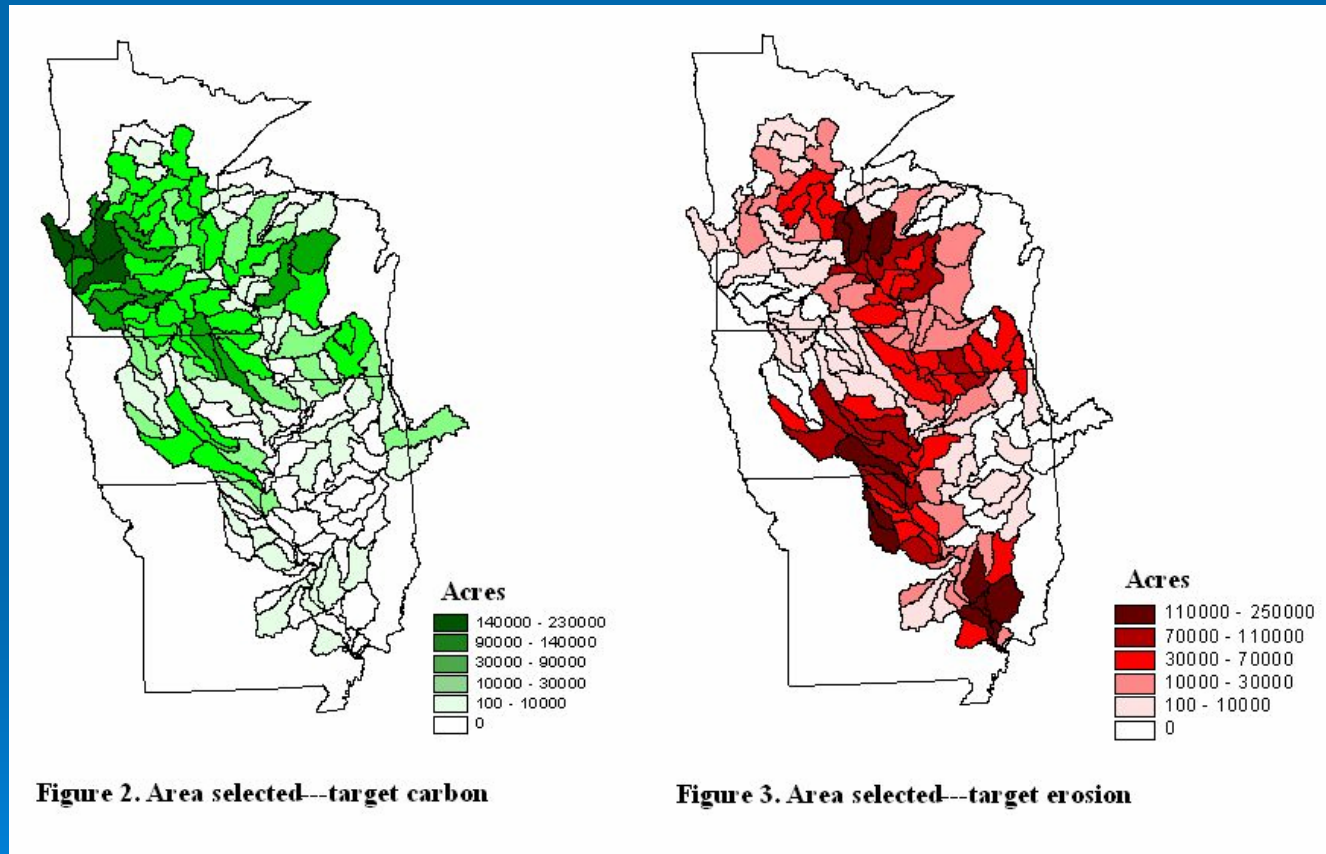



Figure 1. Area selected--the actual CRP program

# Distribution of selected CRP under carbon vs. erosion targeting



### 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](http://www.card.iastate.edu/carbon)