CONNECTING SCIENCE, POLICY & PROJECTS FOR RENEWAL OF RIVERS
The Great Rivers Partnership -- Second Generation

Richard "Rip" Sparks
The Nature Conservancy
The National Great Rivers Research & Education Center
Great Rivers Partnership (GRP)  

2005 TNC teamed with Caterpillar, Inc (CAT) to form the Great Rivers Partnership  

$12M  

an “ambitious effort to guide protection of the world's imperiled freshwater systems and transform the way large working river systems are preserved and protected.”
The Great Rivers Partnership Projects

- Mississippi River
- GRP Center for Conservation & Learning
- Yangtze River
- Magdalena River
- Zambezi River
- Paraguay-Parana Rivers
Lewis and Clark Community College, the University of Illinois and the Illinois Natural History Survey form the National Great Rivers Research and Education Center (NGRREC).

Better understanding of large floodplain-river ecosystems

How to live safely and well with these dynamic and complex ecosystems
NGRREC
Founding Partners

University of Illinois
Urbana-Champaign, IL

Illinois Natural History Survey
Champaign, IL

Lewis & Clark Community College
Godfrey, IL
The National Great Rivers Research & Education Center

Mississippi River

Illinois River

NGRREC Field Station

City of St. Louis

State of Missouri

State of Illinois
Illinois Natural History Survey
Environmental Management Program

• Long Term Resource Monitoring Program (LTRMP)
Mississippi River stakeholders. Corporations, government agencies, river museums, universities, NGOs.

1. Mississippi River needs a persistent, authoritative “voice” to speak for the river to the public and to Congress and the Administration. (NRC 2008 Report on the Mississippi River and the Clean Water Act: the Mississippi River is an “orphan”.)

2. “Struggle together” to learn how to manage great rivers sustainably

3. Develop indicators of “health” and publish an annual “State of the River” report
Great Rivers Partnership (GRP)

National Great Rivers Research & Education Center (NGRREC)

Center for Great Rivers and Sustainability (CGRS)
- Aggregation
- Synthesis
- Policy recommendations

Research

Proof-of-concept projects
Visions of a Sustainable Mississippi River

Merging Ecological, Economic & Cultural Values

10-13 August 2009
Collinsville, IL
wwwngrrec.org
END OF SHOW
**Percent of Floodplain Leveed**

<table>
<thead>
<tr>
<th>Region</th>
<th>Percent</th>
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</thead>
<tbody>
<tr>
<td>Upper MR, north</td>
<td>3%</td>
</tr>
<tr>
<td>Upper MR, south</td>
<td>53%</td>
</tr>
<tr>
<td>Middle MR</td>
<td>82%</td>
</tr>
<tr>
<td>Lower MR¹</td>
<td>93%</td>
</tr>
<tr>
<td>Delta</td>
<td>96%</td>
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¹ From the mouth of the Ohio R to Baton Rouge, LA

Delaney & Craig 1997

“Immediate attention (for restoration) should be given to the remnants of large river-floodplain systems that still exist, because there are so few ….”

Reconnection Questions

Most rivers and their watersheds have been altered to some degree.
Will reconnected areas be degraded, because of:

• *abnormal water regimes and excessive sedimentation?*

• *Invasive species?* (Asian carps)

• *Contaminants?* (pesticides, etc.)

• *Excessive nutrients?* (algal blooms)
Peoria Dam River Mile 157.7

TNC's Emiquon Floodplain Restoration Site

LaGrange Dam River Mile 80

Study Reach: La Grange 130 km
Moist soil plants need Spring floods to kill seedling trees. If water levels are too stable, trees will grow and shade out the moist soil plants.

Lack of flood harms native vegetation

Excessive flooding also harms vegetation

Unnaturally frequent, little floods during the Summer growing season drown the moist soil plants.
Moist Soil Plants

- **Biodiversity**
  - *Boltonia decurrens*, threatened species
  - Representative community

- **Function**
  - Food (direct & indirect, through detritus)
  - Habitat
  - Biological mediator: shore protection, ammonia (N) uptake & removal

- **Public interest**
  - Attract wildlife

- **Indicator**
  - Require floodpulse

- **Largeseed smartweed**
- *Polygonum*
- **Beggarticks**
- *Bidens*
- **Wildmillet**
- *Echinochloa*
Open Gate

Moist Soil Plant Probability
- Probable Water / 429 ft
- 0.0-0.1 / 431.1 ft
- 0.1-0.2 / 433.1 ft
- 0.2-0.3 / 434.1 ft
- 0.3-0.4 / 435.5 ft
- 0.4-0.5 / 436.1 ft
- Above Tree Line
- Levee Districts
Compare Moist-soil Plant Results

Acres of Successful Production

Open
Gated

Years

Acres of Successful Production
Modeling Reconnection

• Helped us choose among alternatives
  – Structures (gates vs. gaps)
  – Operation (work with the river to mimic natural water regime)

• Helped assure stakeholders, including cooperators (NRCS-Wetland Reserve Program) and donors, that reconnection would benefit conservation targets (moist soil plant community, paddlefish, etc.)

• Economic model indicated Emiquon could diversify local economy
Levee and Drainage Districts

100-Year Flood Event

Storage  Protected

This farm is producing fish!

Misganaw Demissie, Illinois State Water Survey
How many Emiquons are necessary on the Illinois River to:

1. Recover ecosystem products? (fisheries)
2. Recover ecosystem services? (flood reduction, nutrient retention)
3. Recover & maintain biodiversity?

| Output Value       | $ - 1,251,031 | $ 500,000 | $ 3,280,000 | $ +2,028,969 |
END OF SHOW
REALLY!