Wetland Restoration on Private Lands: Changing Perspectives and Future Challenges

➢ The problem is the same: Wetland loss and alteration

➢ Progress has been made

➢ Different partners: Changing expectations

➢ From restoration to maintenance

➢ Monitoring – evaluation - adaptation
Annual Wetland Loss: U.S.

U.S. has lost 16.8 million acres of wetland since the 1950s.
> 2.4 million acres
> 12,000 contracts
Voluntary, incentive-based partnerships to deliver habitat on-the-ground

- **Landowners** – Ranchers, Farmers, Recreational Owners.
- **Agencies** – State, Federal, Regional.
- **Conservation Organizations** – NWTF, TNC, PF, NWF, etc.
- **Local Communities** – Lake Associations, City and County Governments, Wildlife Clubs, etc.
- **Private Philanthropists** – Individuals, Foundations, Corporations.
Wetlands Conservation at Landscape Scales
Wetlands restoration and management: Hydrology, Disturbance Regimes, Connectivity
Restoration Tools

The “Iron Glacier”
Considerations of scale

Across wetland landscapes
Across basins within a landscape
Across time within site
Across landowner objectives
Rivers and Floodplains
Water regimes on managed wetlands
Drawdown Slooooowly!
Reflood Slooooowly!
Flood Frequency on Locust Creek - Missouri

Gage Height (ft)

National Conference on Ecosystem Restoration
Baltimore, MD
1-5 August 2011
Managing the investment:

- Maintaining infrastructure
- Vegetation management
- Water management
- Sedimentation
- Invasive exotic species – reed canary grass, purple loosestrife
- Undesirable vegetation – cocklebur, sunflowers, bulrush, primrose, phragmites
- Tree invasion – cottonwood, willow, maples
- Tree mortality
Deteriorating Infrastructure
Modified disturbance regimes
What’s Your Objective?

• Recreation?
• Wildlife Habitat?
• Water Quality?
• Nutrient Management?
• Financial?
• All the Above?
The partnership is changing:

- The landowner base over time is changing
- Continuing landowner education
- Follow up to ensure conservation practice in place
- Need to stay with landowners
- Landowners need “skin in the game”

- Annual landowner checks
- Newsletters and management guides
- Assess objectives and expectations
Landowner education

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Take Home Point
Get Professional Help!!!
Evaluating and adapting with a focus on uncertainty
Habitat Loss in Priority Landscapes
Degree to which natural processes are altered
Degree to which physical integrity is altered

Tundra
Mississippi Alluvial Valley
Central Valley
Western Boreal Prairie
Potholes

A model of Restoration and Management
A model of Restoration and Management

Degree to which natural processes are altered

Degree to which physical integrity is altered

Restore Basin Integrity

Intensive restoration and management

Restore Natural Processes

Mimic processes

Protection

Restore Basin Integrity

Intensive restoration and management

Degree to which physical integrity is altered

Degree to which natural processes are altered
### Sources of uncertainty:

<table>
<thead>
<tr>
<th>Category</th>
<th>Biological / Ecological</th>
<th>Social</th>
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<tbody>
<tr>
<td>Environmental</td>
<td>Flood Frequency</td>
<td>Landowner incentive for participation</td>
</tr>
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<td>Structural</td>
<td>Seed bank response</td>
<td>Landowner capacity for wetland management</td>
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<tr>
<td>Management control</td>
<td>Invasive species control</td>
<td>Society’s support for ecological goods and services</td>
</tr>
<tr>
<td>Measurement</td>
<td>Waterbird response</td>
<td></td>
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</tbody>
</table>
Avoid biological arguments for social uncertainties

Decision

- Manage waterfowl hunting
- Passive vs. active management
- Fund wetland restoration
- Increase flood control
- Respond to climate change

Source of Uncertainty

- Environmental
- Structural
- Mgt control
- Measurement

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