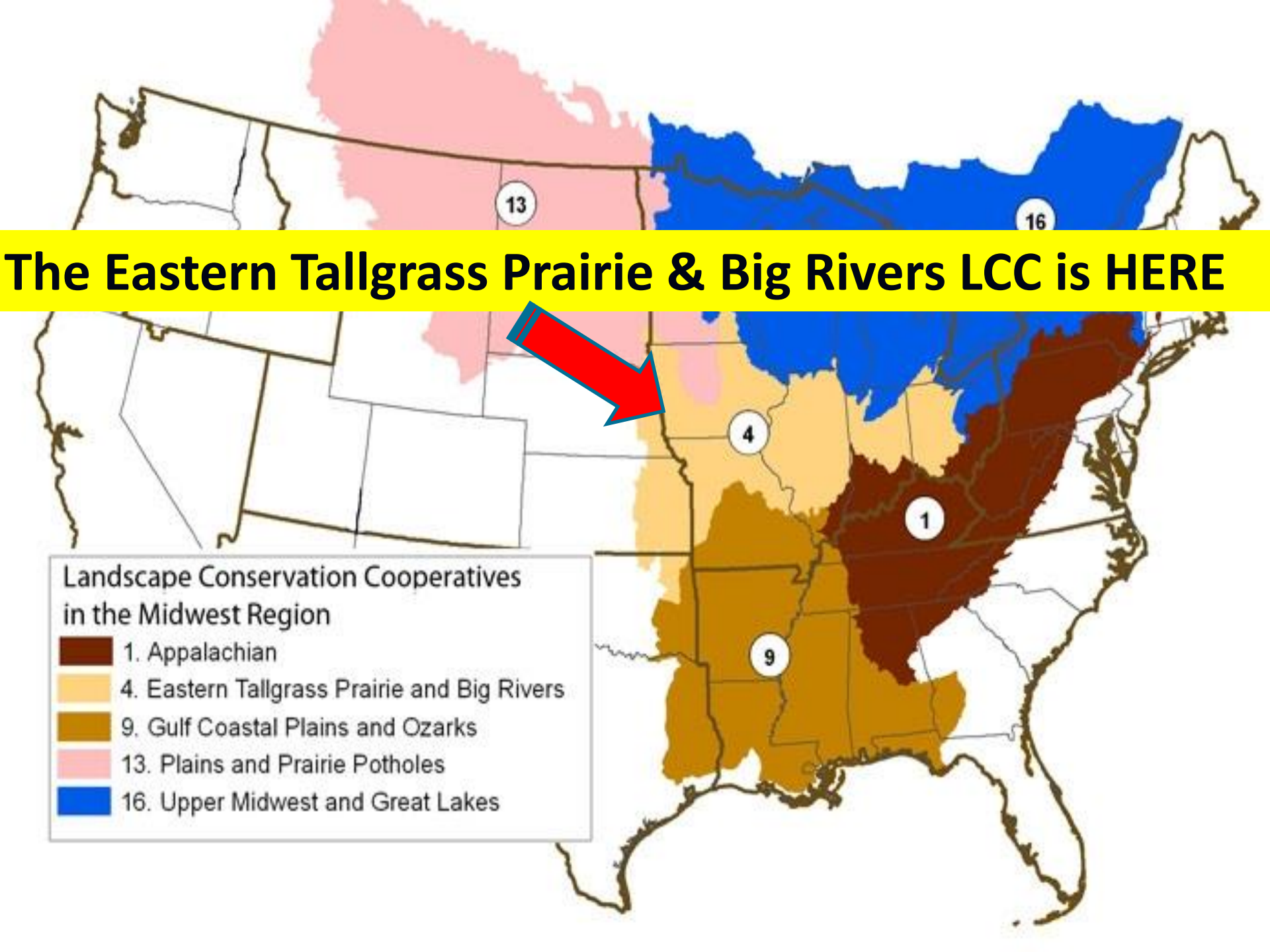
Stone Soup Conservation

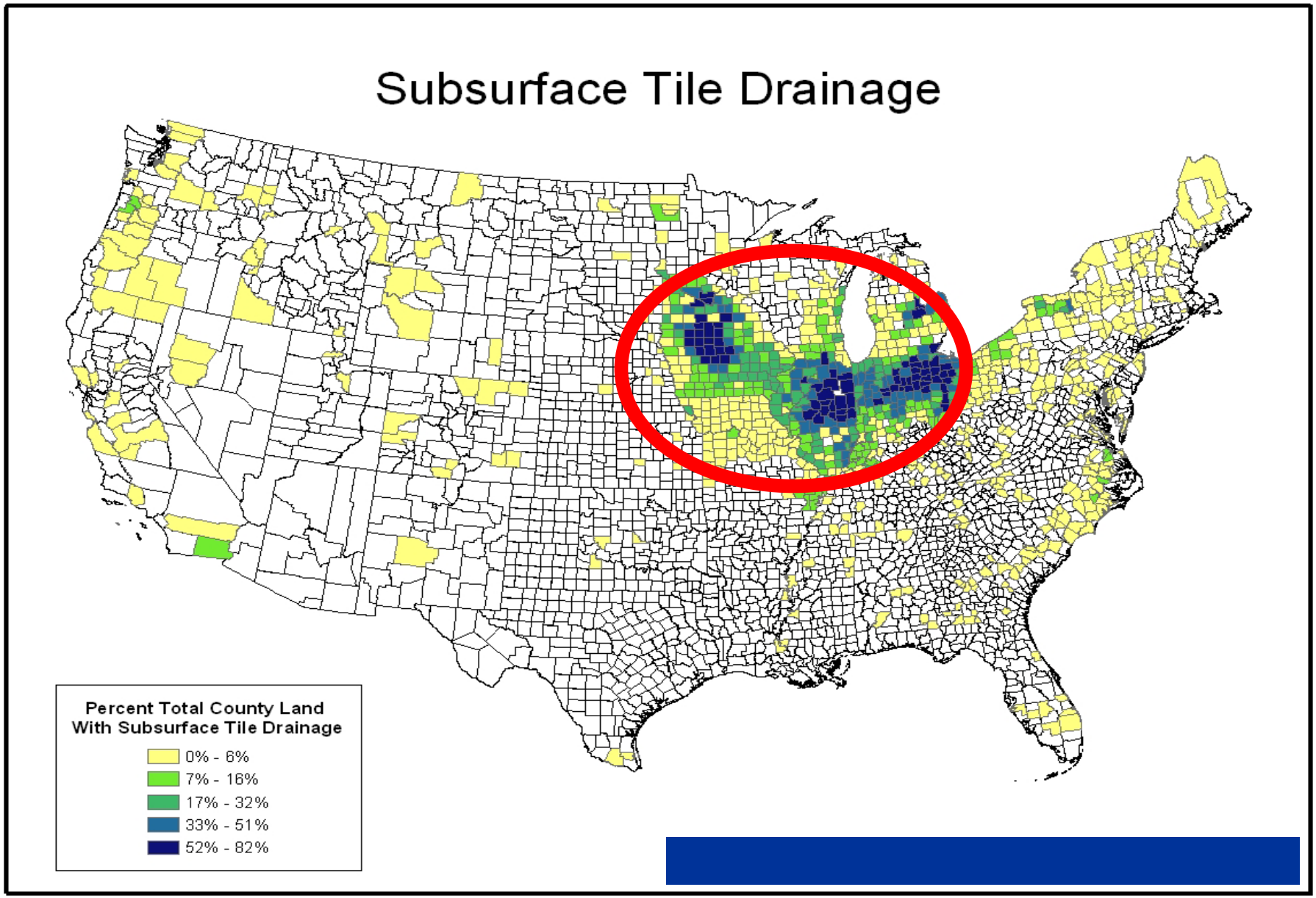
Responding to Landscape Challenges in the Eastern Tallgrass Prairie & Big Rivers LCC

Glen Salmon & Gwen White
Eastern Tallgrass Prairie and Big Rivers LCC
U.S. Fish and Wildlife Service
Region 3, Bloomington, Indiana


The Eastern Tallgrass Prairie & Big Rivers LCC is HERE
13
16
4
1
9
Landscape Conservation Cooperatives
in the Midwest Region
1. Appalachian
4. Eastern Tallgrass Prairie and Big Rivers
9. Gulf Coastal Plains and Ozarks
13. Plains and Prairie Potholes
16. Upper Midwest and Great Lakes

Better known as the Cornbelt Desert LCC

We are here…


Subsurface Tile Drainage
Percent Total County Land
With Subsurface Tile Drainage
0% - 6%
7% - 16%
17% - 32%
33% - 51%
52% - 82%

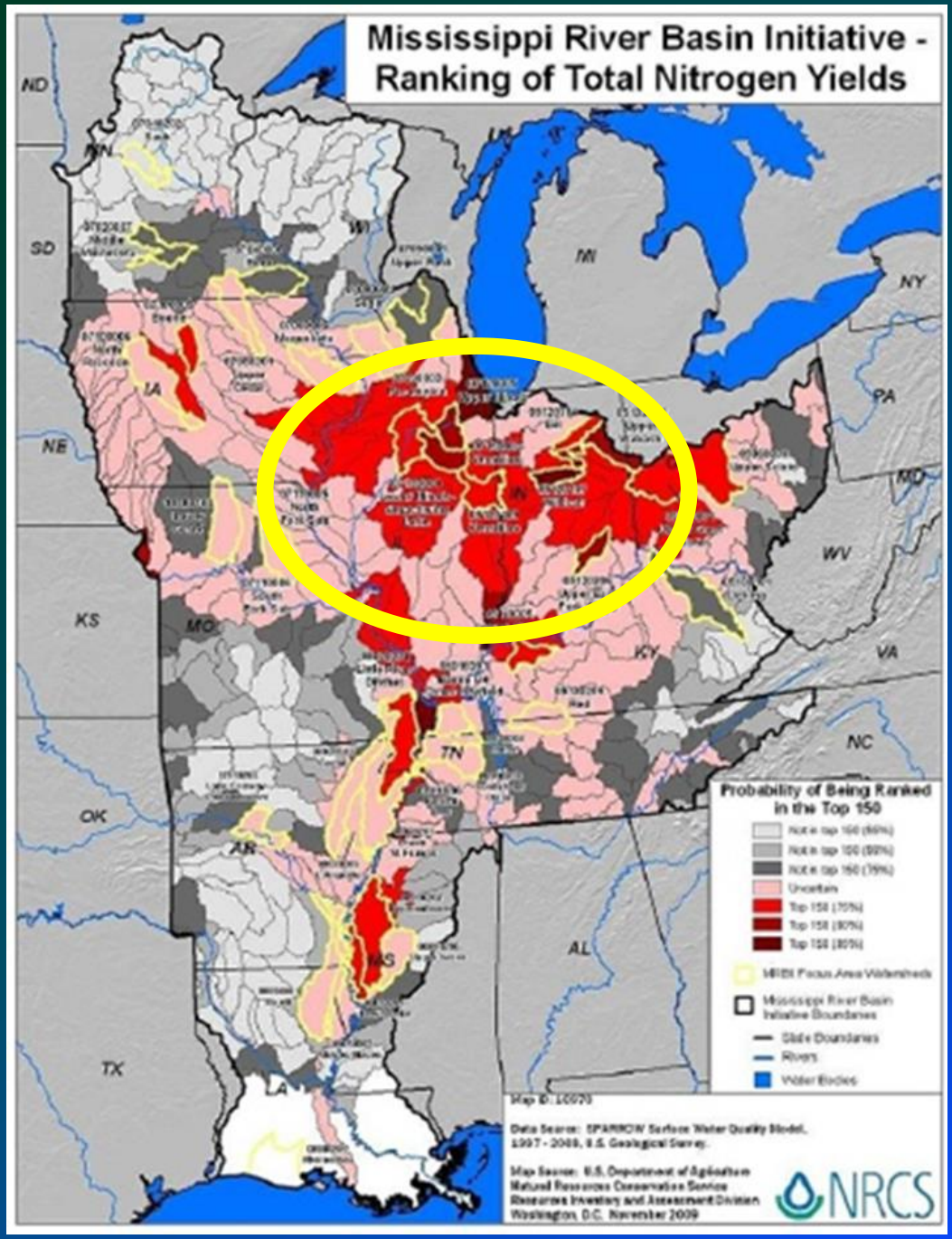
And we are here…

Gulf Hypoxia Zone

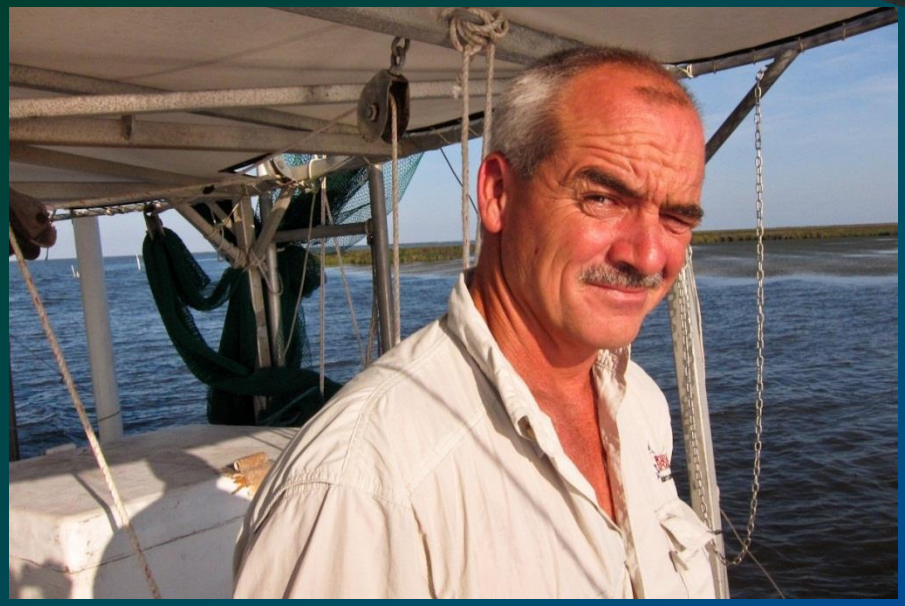
9 states = 75%

of nitrogen yields to Gulf of Mexico

Note location of red watersheds



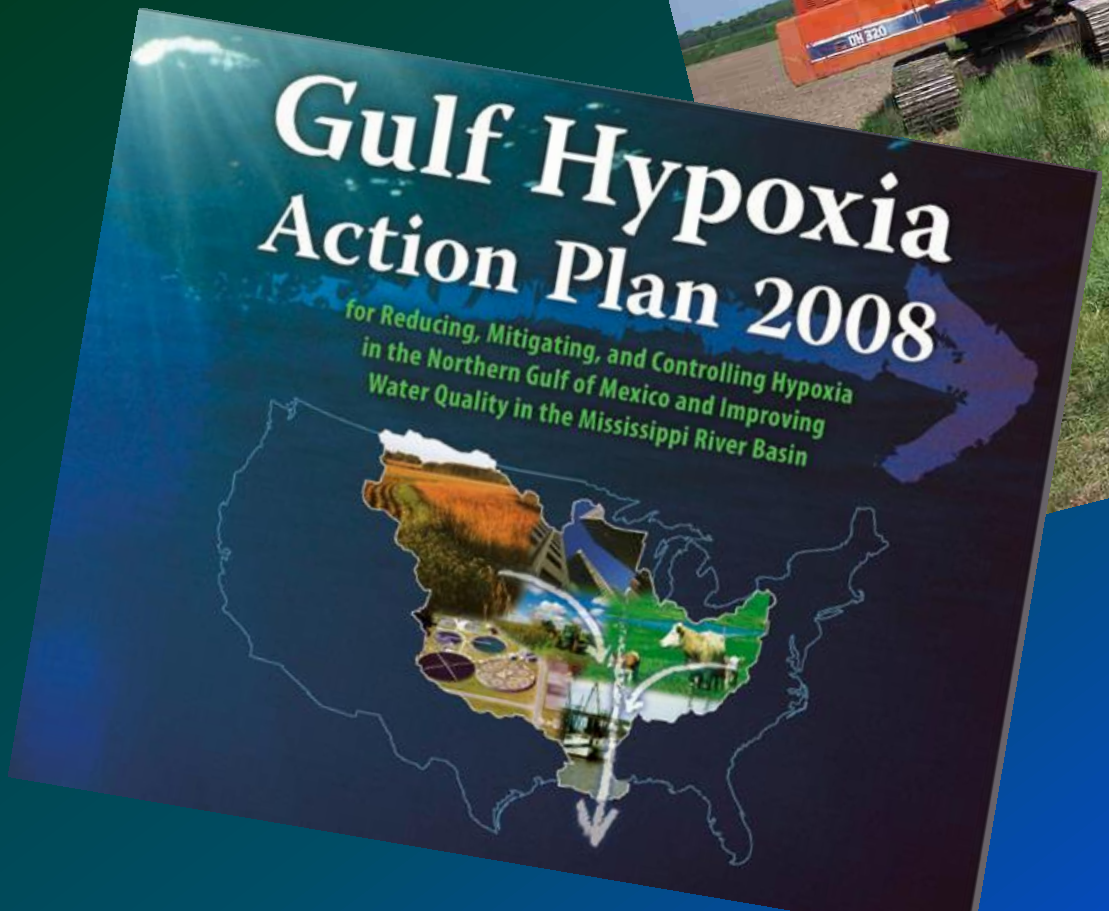
Which makes people here…



Not very happy.

LCC Rallying Cry:

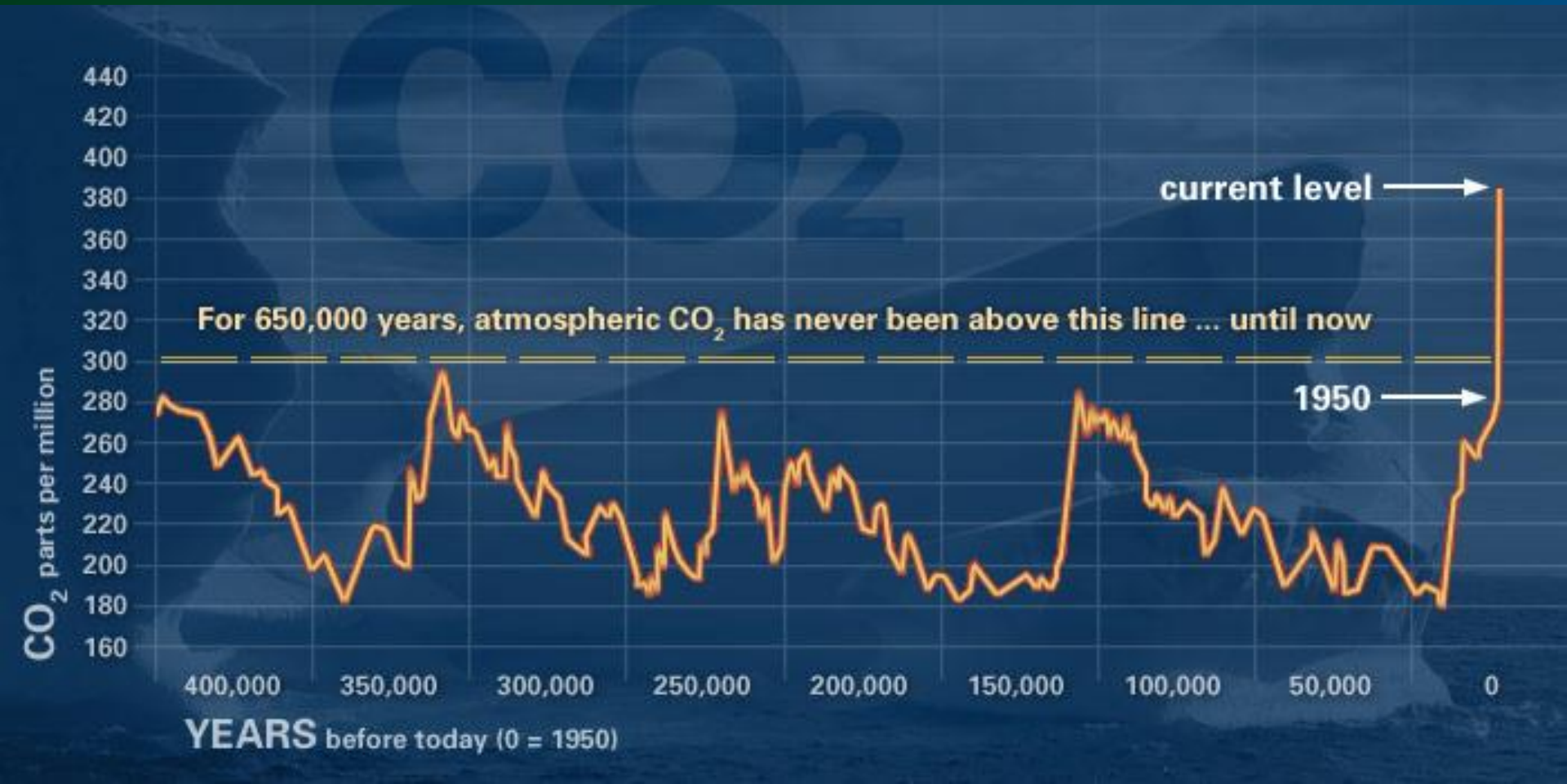
"Let's fix the plumbing!"



But how?

“If you do what you've always done, you'll get what you've always gotten.”

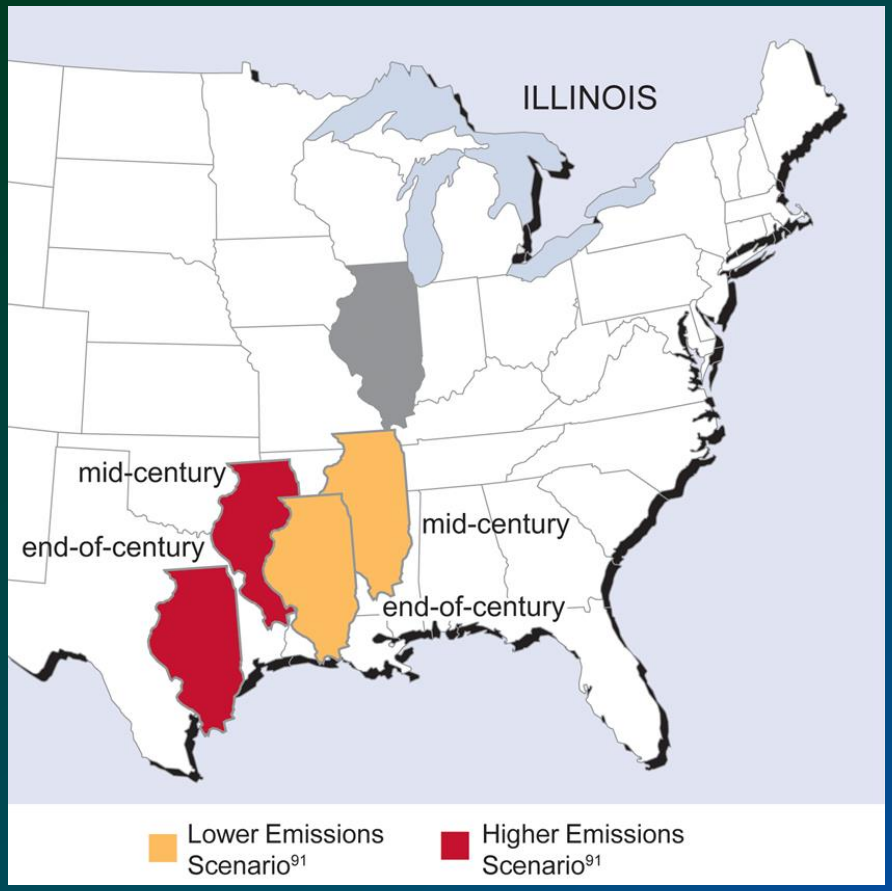
. . .OR maybe not.



Stationarity is Dead.

When Illinois is East Texas…

How Will We Adapt?



With Climate Change…
There goes the neighborhood.

DECLINING species

- Reproduce at older ages
- Unique habitats
- Low dispersal ability
- Specialist feeders
- Sensitive to human activity

Pollinators, grassland birds, turtles, frogs, salamanders, trees …

FAVORED species

- Short generations
- Wide distribution
- Move easily
- Generalist feeders
- Disease resistant
- Co-exist with humans

Deer, rats, Canada geese, starlings, raccoons, agricultural weeds, …

Our Choice: Corn or Grassland Birds?

High commodity prices are great for farmers…

Not so great for grassland birds.

Causing conversion of CRP to crops at 5% per year.

These are the highest rates of loss since the Dust Bowl.

Is this another “Silent Spring”?

Modern Challenges Require a Science Agenda with Stakeholder Input

Glen Salmon & Gwen White
Eastern Tallgrass Prairie and Big Rivers LCC
U.S. Fish and Wildlife Service
Region 3, Bloomington, Indiana

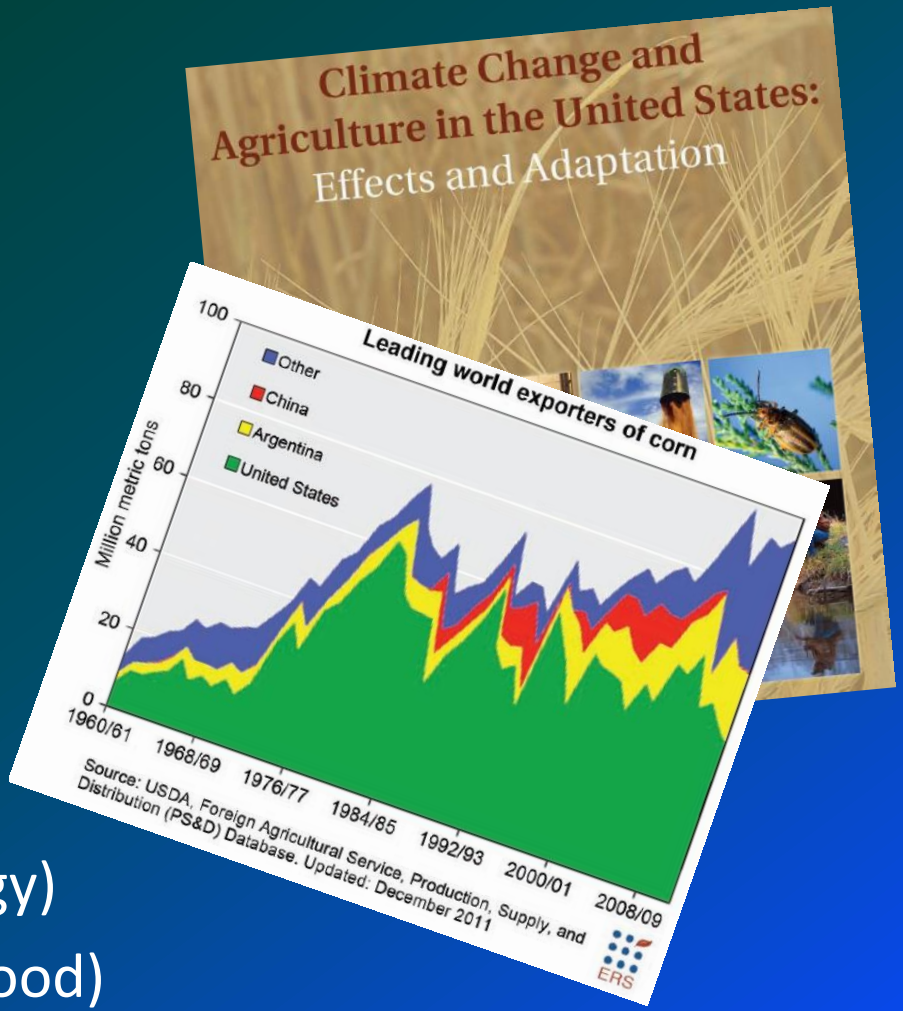
DRAFT Strategic Plan - Table of Contents

- **Executive Summary** – what most will see
- **Introduction** – who we are
- **Strategic Plan** – the details
  - Risk (Challenges)
  - Solution (Vision)
  - Asset (Mission)
  - Focal Areas & Subregions
  - Guiding Principles
  - Operational Framework (Strategic Habitat Conservation)
  - Goals, Objectives, Strategies ← WE ARE HERE
  - Performance Measures (SIAS)
  - Annual Work Plan

Eastern Tallgrass Prairie & Big Rivers

What is the risk? What are the challenges?

- ***Physical drivers***
  - Nutrient & sediment loading
  - Invasive species and diseases
  - Climate change
- ***Social drivers***
  - Land use
    - Cornbelt agriculture
    - Urban growth
    - Rural depopulation
  - Economics (food, fiber, energy)
  - Water demand (drought & flood)
  - Organizational relationships



Eastern Tallgrass Prairie & Big Rivers LCC

Vision:

Develop & Connect Wildlife with People on the Rich Soils of a Functional Working Landscape

- **Vistas –** Expansive restoration sites and big river systems that represent the iconic and historic landscapes of the region.
- **Gems –** Scattered pockets of biodiversity that remain tucked among the working lands of a region largely dominated by agriculture and urbanization.

Draft Mission

The Eastern Tallgrass Prairie & Big Rivers LCC coordinates among many partners to:

- **Understand the consequences of landscape-scale change.**
- **Develop common landscape-level conservation objectives and strategies.**
- **Produce pragmatic science that addresses current and future environmental stressors.**

Eastern Tallgrass Prairie & Big Rivers LCC

4 Focal Areas for Pragmatic Research

Vistas: large scale restorations

1. Prairie Restoration
2. River Restoration

Gems: working landscapes

3. Agroecology Conservation Practices
4. Urban Watershed Management

Focal Area 1
Prairie Restoration

Restore & Connect Wildlife with People on the Rich Soils of a Functional Working Landscape

Prairie Restoration

What Are Some Example Science Needs?

What to consider:

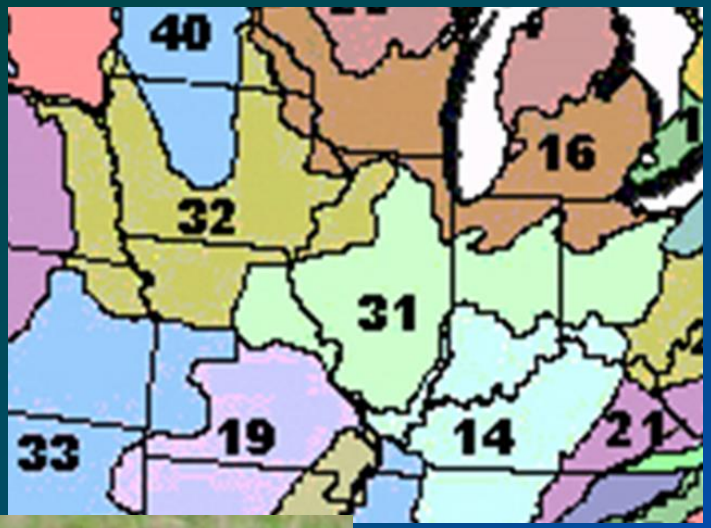
- Effects of climate on establishment (seed mixes, burning/grazing, soils, hydrology) to inform planning and identify best management practices.
- High resolution remote sensing of grassland quality & quantity to assist with conservation planning and tracking implementation.
- Socio- and agro-economics into grassland [bird] conservation planning.
- Conservation during non-breeding periods for focal grassland birds.

Where to start:

- Network of networks (connecting, expanding perspective)

What Prairie Species Indicate Success?

- Prairie Peninsula (PA 31)
  - Greater Prairie Chicken
  - Henslow's Sparrow
  - Dickcissel
- Dissected Till Plains (PA 32)
  - Greater Prairie Chicken
  - Henslow's Sparrow
  - Bobolink
  - Field Sparrow
  - Loggerhead Shrike
- Osage Plains (PA 33)
  - Greater Prairie Chicken
  - Henslow's Sparrow
  - Dickcissel



What Stakeholders Have Prairie Restoration Science Needs?

- Prairie Reconstruction Work Group
- Midwest Grassland Bird Working Group
- FWS Refuge Managers Prairie Network
- TNC Ecoregional Plans
- Joint Ventures, Arboretums, The Land Institute, state transportation agencies, etc.
- Others?

Focal Area 2
River Restoration

Restore & Connect Wildlife with People on the Rich Soils of a Functional Working Landscape

River Restoration

What Are Some Example Science Needs?

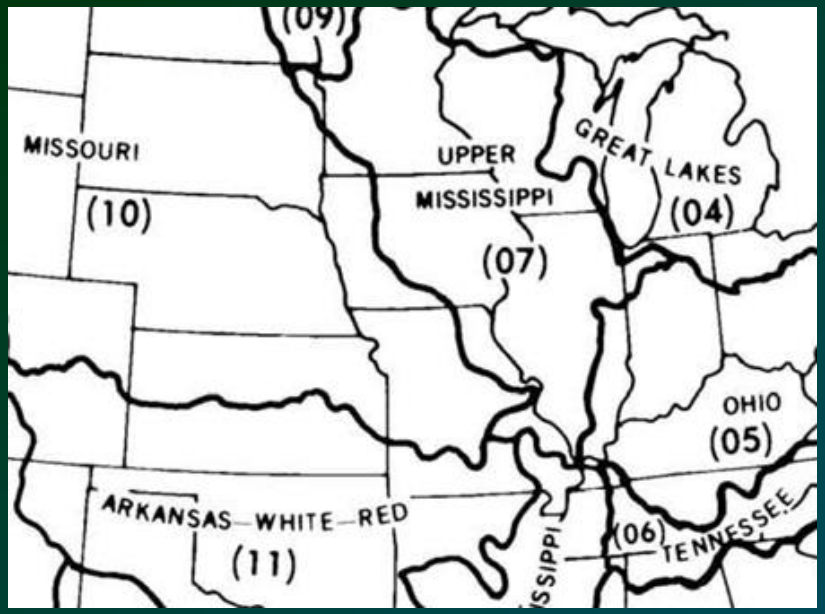
What to consider:

- Connectivity at large scales for climate adaptation
- Shallow water habitat (within river channel)
- Chute design (off main channel)
- Flow regulation (timing & quantity)
- Early life history of pallid sturgeon (larval drift)
- Shoreline erosion impacts to endangered species
- Energy development (hydrokinetic turbines)
- Fish bypass relative to channel slope & velocity

Where to start:

- What motivates landowners to install BMPs
- Clearinghouse for restoration techniques information
- Network of networks (connecting, landscape context)

What River Species Indicate Success?



Missouri River mussels
Photo USFWS; Rick Hanson

- Arkansas River (11)
- Missouri River (10)
  - Pallid sturgeon
  - Chubs
  - Interior Least Terns
  - Piping Plover
- Upper Mississippi River (07)
  - Migratory birds, shorebirds, water birds
- Ohio River (05)
  - Freshwater Mussel (46 species)
- Others?

What Stakeholders Have River Restoration Science Needs?

- Missouri River Work Group – chaired by Army Corps of Engineers with other state and federal agencies
- Fish Habitat Partnerships, Joint Ventures
- Upper Mississippi River Conservation Committee
- Floodplain Science Network (FpSn)
- USGS NAWQA
- Hydrogeomorphic (HGM) Evaluation Teams
- Illinois River Basin Restoration Authority (IL-519)
- Middle Mississippi River Partnership
- Ducks Unlimited Big Rivers Initiative
- Others?

Focal Area 3
Agroecology Practices

Restore & Connect Wildlife with People on the Rich Soils of a Functional Working Landscape

Agroecology

What Are Some Example Science Needs?

What to consider:

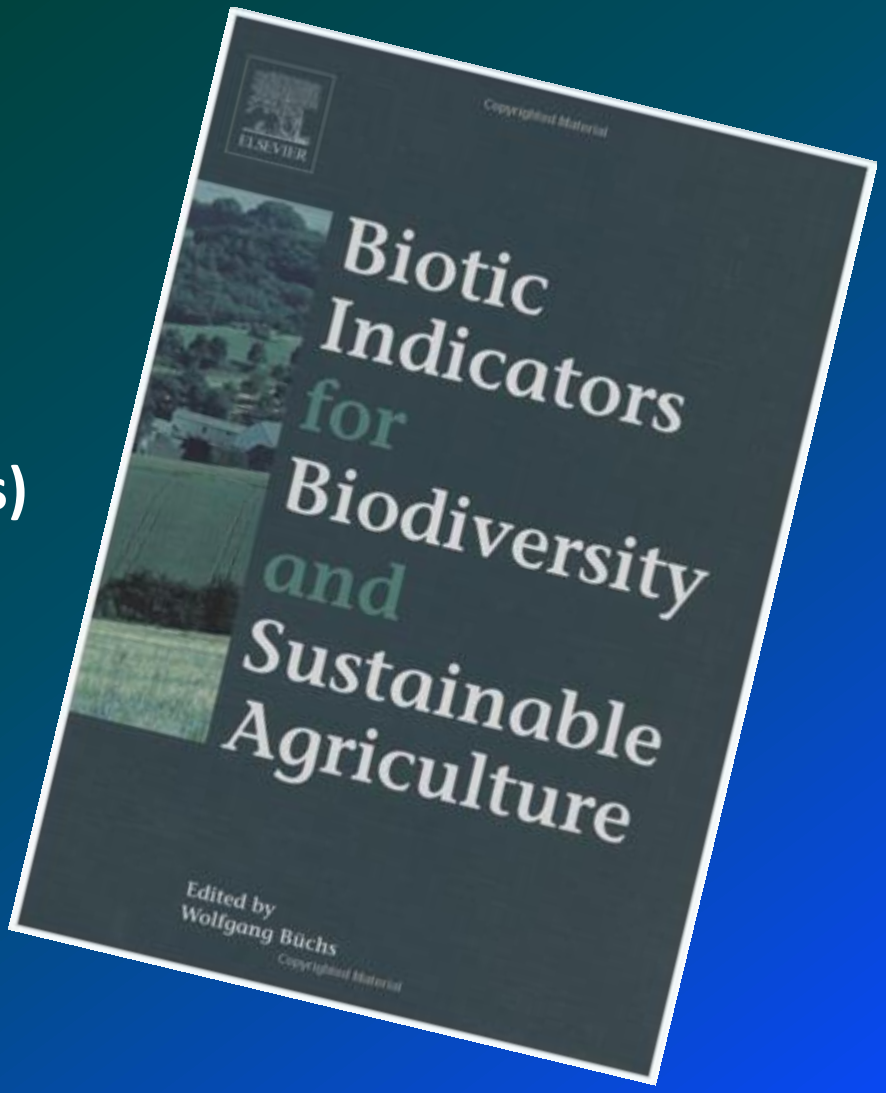
- Economic drivers for wildlife & water quality
- Biomass/biofuels to motivate prairie restoration
- Impacts of climate change on cropping and biodiversity
- Protocols for grazing lands to protect grassland birds
- Value of wildlife to agricultural industries (pollinators)

Where to start:

- Map high priority agricultural conservation areas in watersheds using overlays of:
  - Nutrient export
  - Species and habitat distribution
  - Social capacity for implementation
  - Connectivity (Mississippi Corridor)

What Agroecology Species Indicate Success?

- Pollinators (bees)
- Predators
- Pests
- Soil microbes
- Game species (hunting values)
- Grassland birds
- Floristic diversity
- Others?

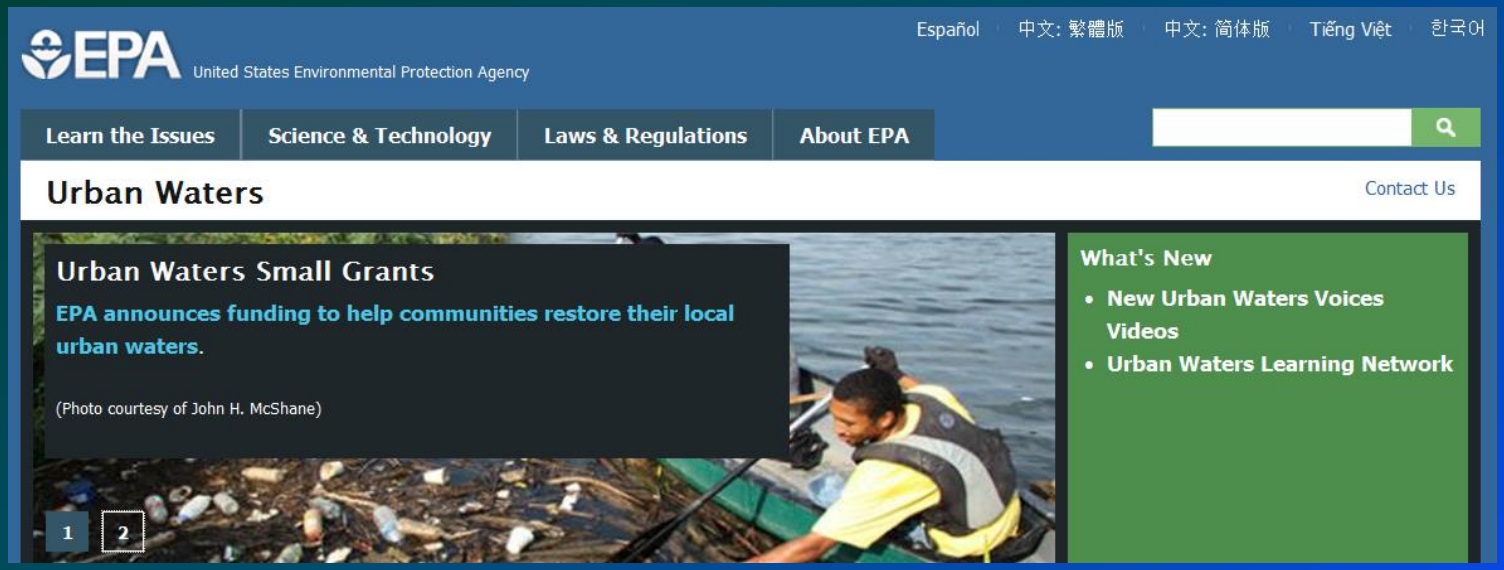


What Stakeholders Have Agroecology Science Needs?

- NRCS State Technical Committees - NE, KS, OK, MO, IA, MN, IL, IN, OH, [ND, WI]
- FWS Private Lands biologists
- MAFWA Private Lands Working Group
- USGS Hypoxia Work Group
  - Mississippi River Basin Initiative
  - Lower Grand River Strategic Plan
- Midwest Conservation Biomass Alliance
- Others?

Focal Area 4
Urban Watershed Management

Restore & Connect Wildlife with People on the Rich Soils of a Functional Working Landscape



Urban Watershed Management

What Are Some Example Science Needs?

What to consider:

- Incorporate wildlife habitat into green infrastructure plans
- Design urban site developments, storm water infrastructure, and interurban corridors for wildlife habitat
- Economics of wildlife habitat for attracting business and tourists to small towns and cities
- Climate impacts to urban infrastructure and habitat

Where to start:

- Workshop to share programs and lessons learned
- Web-based clearinghouse of existing programs
- Simulation tools for siting conservation practices
- Education on protection of riverine systems

What Urban Watershed Species Indicate Success?

- Pollution sensitive (ex. pharmaceuticals)
- Feeder birds, water birds, nesting birds
- Floristic diversity – rain gardens, street trees
- Zoonotic diseases & pests
- Amphibians/reptiles
- Butterflies
- Predators
- Other?

What Stakeholders Have Urban Watershed Science Needs?

- Chicago Wilderness / State Agencies – WI, IL, IN, MI
- Indianapolis: Central Indiana Land Trust, UWRA
- Quad cities: Living Lands & Waters
- Omaha: “Back to the River” University NE & Iowa State University
- Iowa City: Iowa Flood Center
- St. Louis: Great River Greenways; Missouri River Relief
- Tulsa: Arkansas River Master Plan & Vision 2025
- Agencies: Urban Waters Network (EPA), State SWAPs, etc.
- NGOs: TNC, America’s Great Watershed Initiative, etc.
- Others?

How to Narrow the LCC Science Agenda?
Structured Decision Making (SDM)
"PrOACT"

Step 1. Defining the Problem

Step 2. Establish Objectives

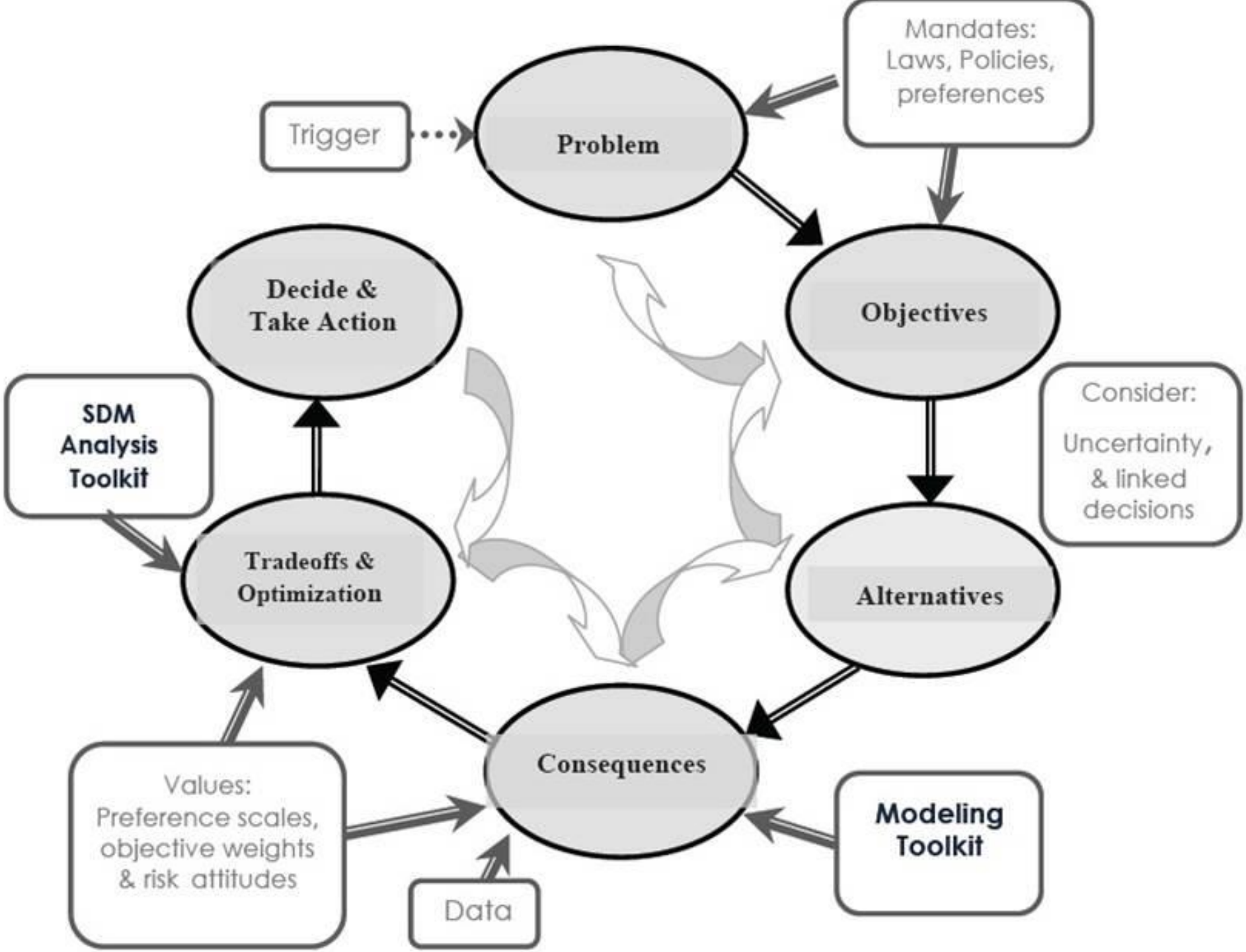
Step 3. List Alternative Actions

Step 4. Predict Consequences

* Model effect of each action on each objective
* Measure Effects of Actions

Step 5. Examine Trade-offs

* Weighted according to values


Mandates:
Laws, Policies,
preferences
Trigger
Problem
Decide &
Take Action
Objectives
SDM
Analysis
Toolkit
Consider:
Uncertainty,
& linked
decisions
Tradeoffs &
Optimization
Alternatives
Consequences
Values:
Preference scales,
objective weights
& risk attitudes
Modeling
Toolkit
Data

Modern Challenges Require a Different Way of Working Together

Glen Salmon & Gwen White
Eastern Tallgrass Prairie and Big Rivers LCC
U.S. Fish and Wildlife Service
Region 3, Bloomington, Indiana

We can't do this alone.
Shared Capacity with Partners

In practice, LCC success will hinge, like the ecosystems we seek to conserve, on the sum parts of the whole – most assuredly the cooperation and collaboration of state and federal agencies, NGOs and private landowners alike.

What Do We Get Out of Collaborating?
Stone Soup Conservation !

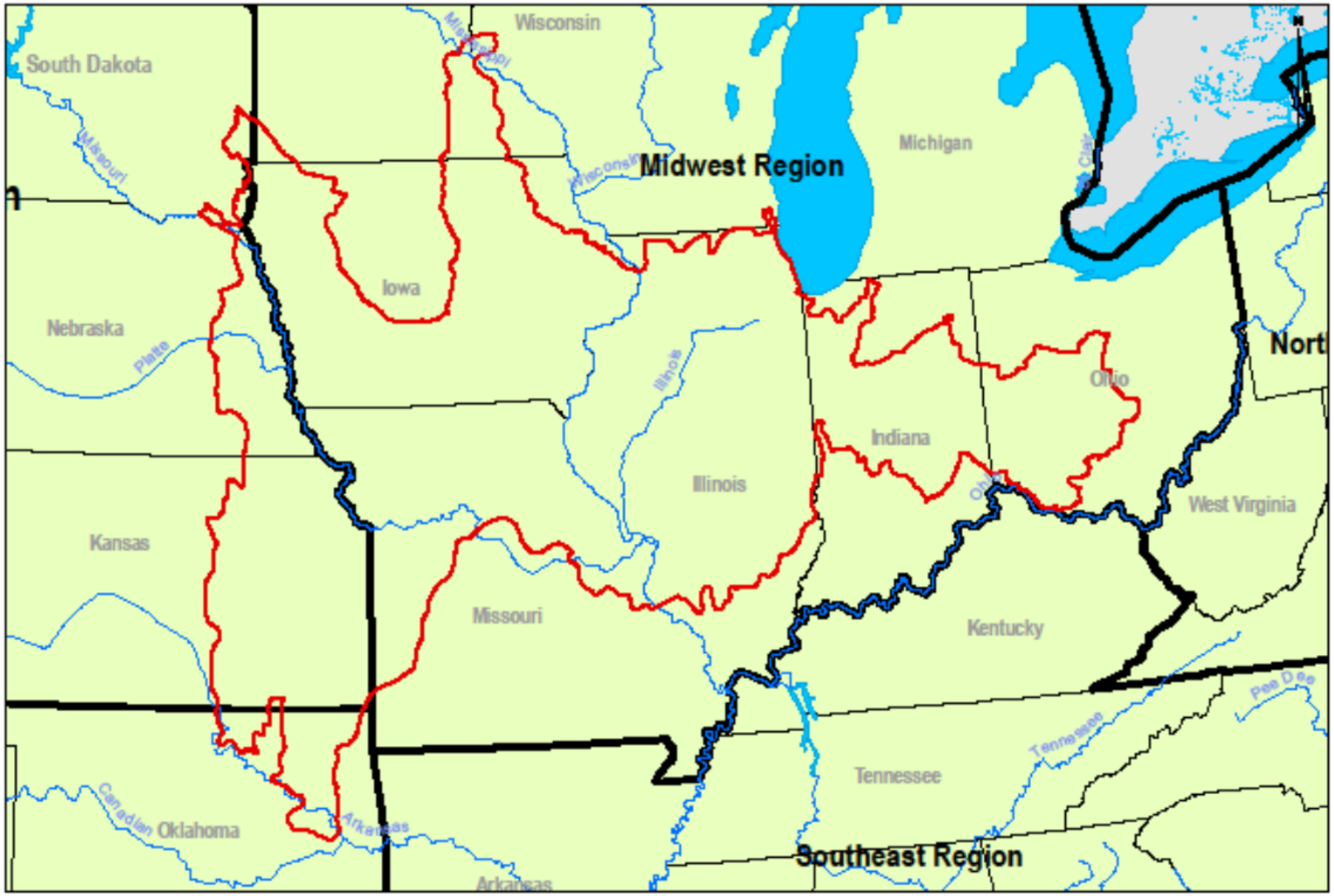
Not much project money but…

- Unusual networks
- Better problem solving
- Greater productivity
- More effective use of existing resources
- Large-scale long-term multi-disciplinary perspective

US Fish & Wildlife Service January 2010

Eastern Tallgrass Prairie & Big Rivers Landscape Conservation Cooperative

National Geographic Framework Boundary



Created by US FWS Region 3 - Division of Conservation Planning

0 75 150 300 Miles

Who is Leading?

ETPBR LCC Steering Committee

States: IA, IL, IN, KS, MO, NE, OH
Illinois Natural History Survey
Chicago Wilderness
Intertribal Agriculture Council
Ducks Unlimited
Pheasants Forever
Fish Habitat Partnerships
The Nature Conservancy
Upper Mississippi River and Great Lakes Joint Venture

US Army Corps of Engineers
US Geological Survey
FWS National Wildlife Refuges
NRCS
US EPA
USDA Farm Services Agency
FWS Region 3 (Midwest)
FWS Region 6 (Mountains)
US Forest Service
Northeast Climate Science Center
National Parks Service

How to flourish in an era of rapid change?
Build a Strategy Network*

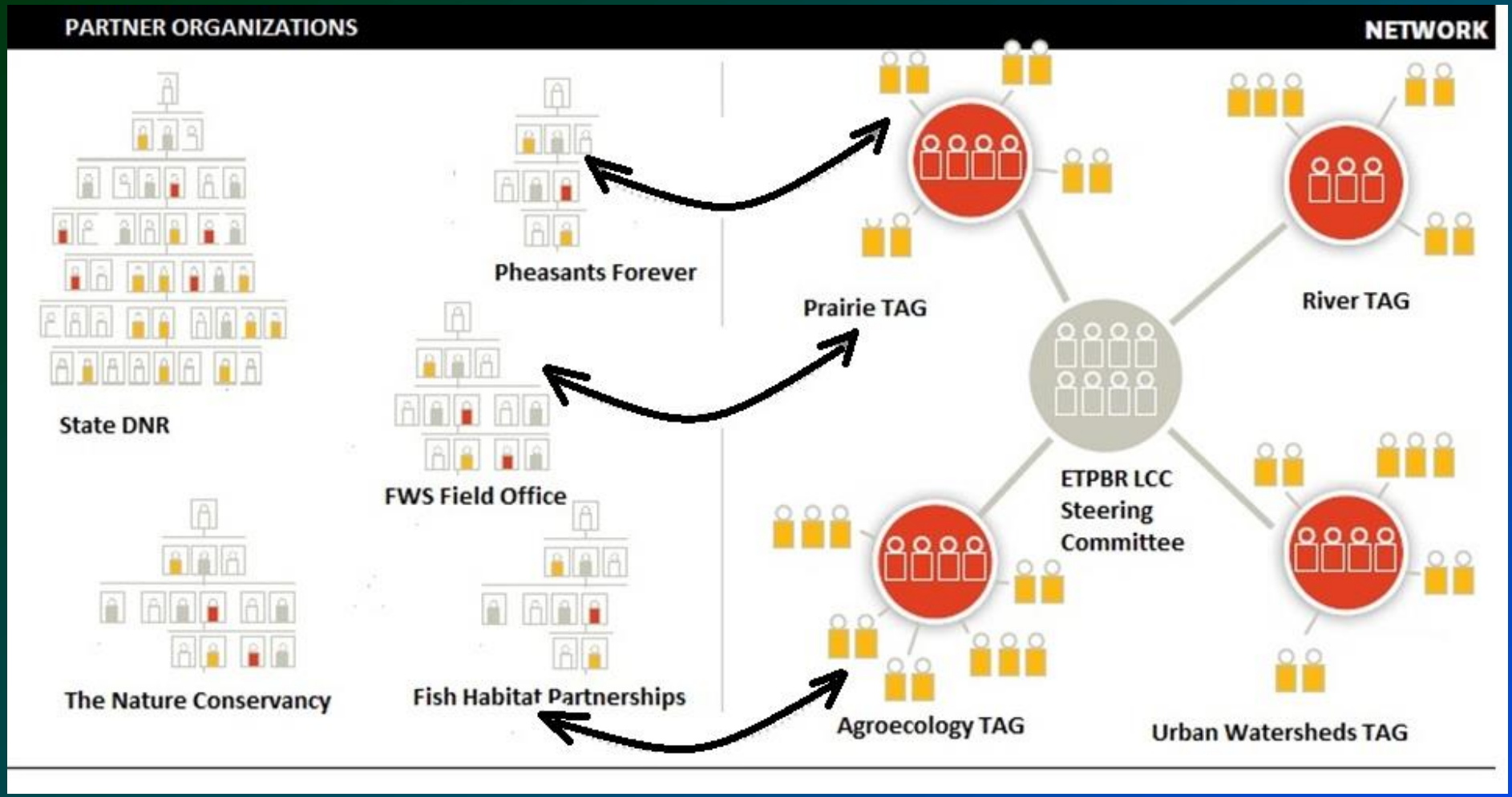
vision, opportunity, agility, inspired action, community

- Convene many **change agents from within the ranks**.
- Draw attention to **front-line concerns**.
- **View the future from multiple angles**.
- Focus passion and intelligence on the **biggest opportunities**.
- Think creatively to **solve wicked problems**.
- **Eliminate collaborative barriers** between organizations.
- Promote a **useful flow of information** and activity.

**Accelerate!* J.P. Kotter. Reprint R1211B. Harvard Business Review, Nov 2012.

Build a Strategy Network*

Vision, opportunity, agility, inspired action, community.



**Accelerate!* J.P. Kotter. Reprint R1211B. Harvard Business Review, Nov 2012.

ETPBR LCC Organizational Structure

Steering Committee
- Strategic direction
- Organizational oversight
- Funding decisions
- Implementation authority

Management community
- Conservation agencies
- Private landowners
- Business community
- NGOs on-the-ground
- Communicate priority Science Needs from the field
- Test research outcomes in a management context

LCC Staff
- Facilitate organizational development
- Day-to-day operations
- Communication across groups & outreach
- Share resources & concepts from
- FWS Region 3 Science Advisory Team
- National LCC Network

Technical Advisory Groups (TAGs)
- Refine strategic plan; develop science agenda
- Propose targeted RFPs or project scopes of work; proposal review

Proposed ETPBR LCC TAGs
- Prairie Restoration
- River Restoration
- Agroecology
- Urban Watersheds

- Regional Conservation Design (shared)
- Information & Technology Transfer (shared)

Research Community
- Universities & Business R&D
- Agency & NGO research scientists
- Forecast future challenges
- Bring cutting edge ideas & tools
- Conduct applied research
- Describe management implications of research outcomes

How to Solicit Input Efficiently and Effectively?

Steering Committee (28 organizations)

PBRAT – FWS Advisory Team (liaisons with 7 Programs in 2 FWS Regions)

List of 136 people--*and climbing*--interested in 4 Technical Advisory Groups (TAGs)

- Prairie Restoration
- River Restoration
- Agroecology Practices
- Urban Watershed Management

See… Corn and Shrimp Do Go Together!

Partnership questions - How to:

- Maximize input on science priorities from a large group of stakeholders
- Motivate partner involvement with no project money
- Frame (very far away) downstream benefits for actions that cost farmers upstream
- Develop a research agenda that focuses on applied science
- Not step on toes of existing regional partnerships
- Identify meaningful collaborative actions at regional and national LCC levels