How Citizen Data Can Affect Local Decision-Making

John Delaney, Agroecologist/WQ Monitoring Coordinator

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Valley Stewardship Network

Protects and promotes healthy ecosystems and water quality through community engagement and education about sustainable land use.

VALLEY STEWARDSHIP NETWORK

Citizen Science

15 years of Water Quality Research

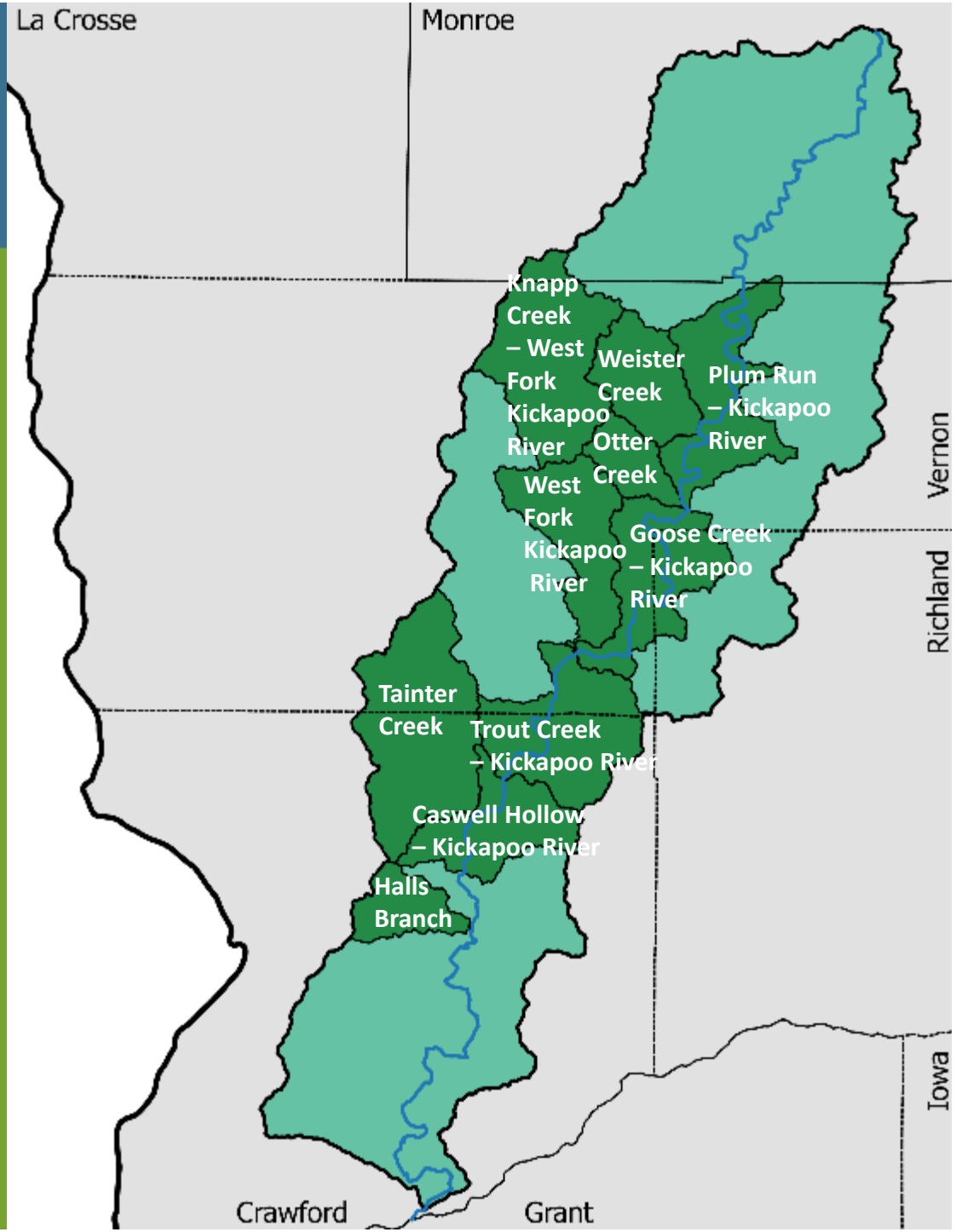
- **200+ Trained**
- **50+ Stations**
- **20+ Active Stations**

VALLEY STEWARDSHIP NETWORK

Mississippi River Basin Initiative

- NRCS Water Quality Initiative (3 Years)
- 12 Kickapoo Subwatersheds
- $5.3 million for 60+ EQIP Practices
- Sediment & Phosphorus Run-off Reduction

VALLEY STEWARDSHIP NETWORK



Current Efforts

- Technical Assistance
- Tallgrass Prairie STRIPS
- Watershed Councils
- Increase Monitoring
- Analysis

Characterize, Identify & Quantify Change

- Characterize subwatersheds on multiple levels
  - Water Quality
  - Land Use/Cover
  - Erosion Vulnerability
- Identify Areas for Conservation Opportunities
  - Target Outreach
  - Catalyze formation of Watershed Councils
- Assess changes over long-term

2016 Total Phosphorus

- River Planning Grant – Baseline data for Watershed Council Development
- Applied for by Water Action Volunteers
- Suggested by WI DNR Biologists

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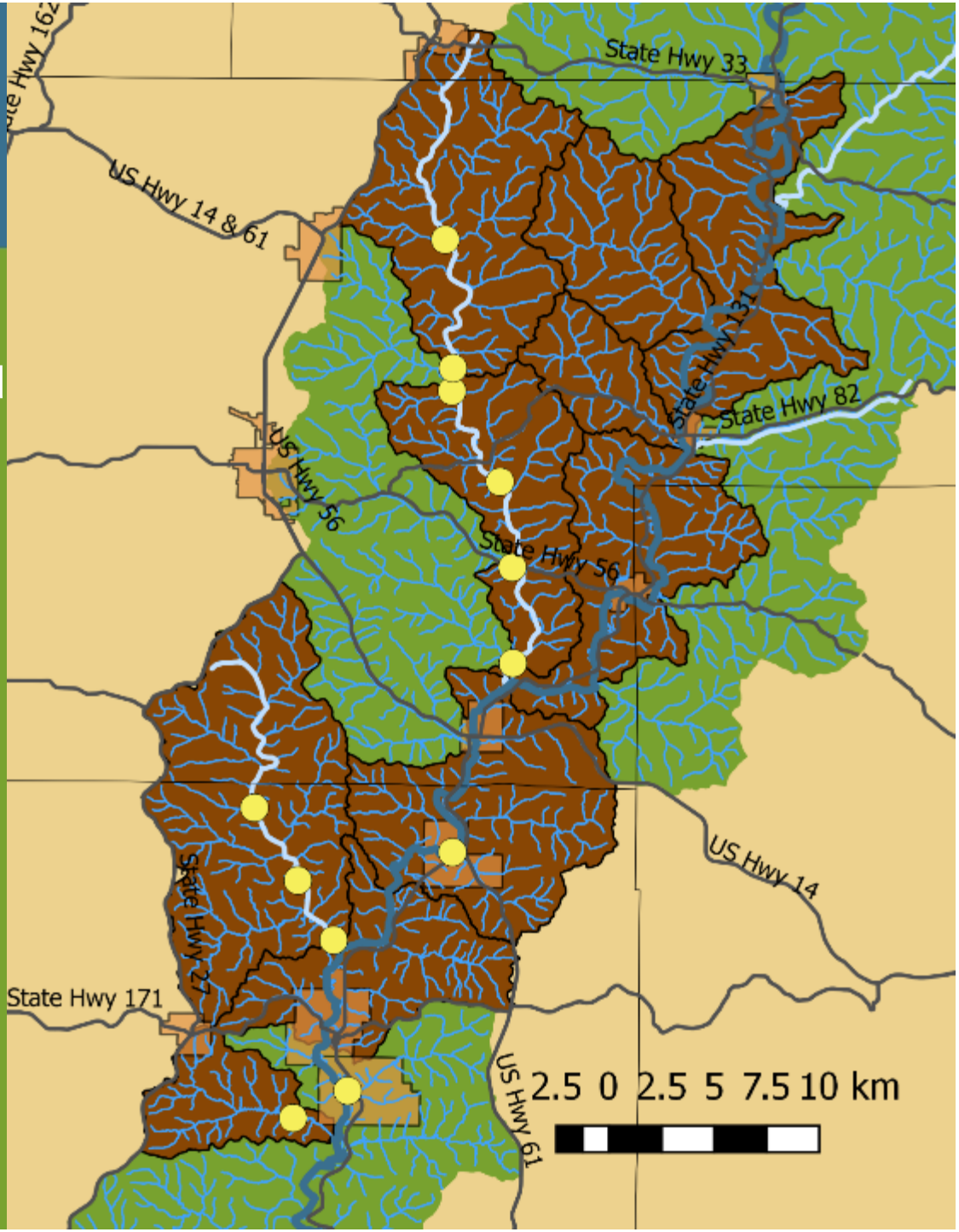

Macroinvertebrate Sampling

- Working closely with 2 DNR stream ecologists
- Late October 2016
- 30+ sampling locations

Targeted Sampling at Pour Points

- **Sampling Macroinvertebrates and Total Phosphorus**
- **Positioning New Water Action Volunteers**
- **Mostly Public Access**

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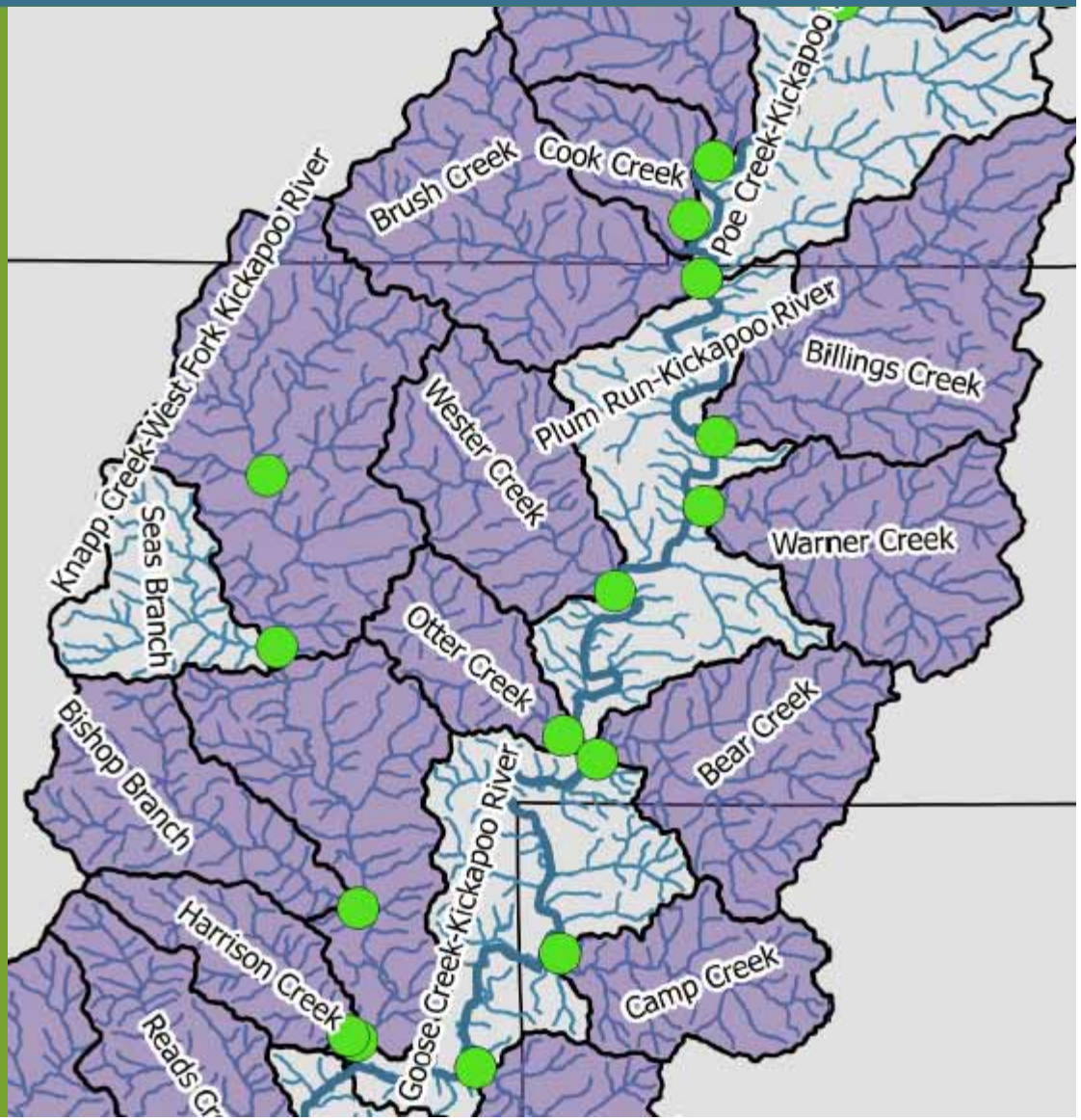

Utilize Data from Previously Established Stations

- ~ 50 Stations with data in the Kickapoo River Watershed
- 10+ Currently Active

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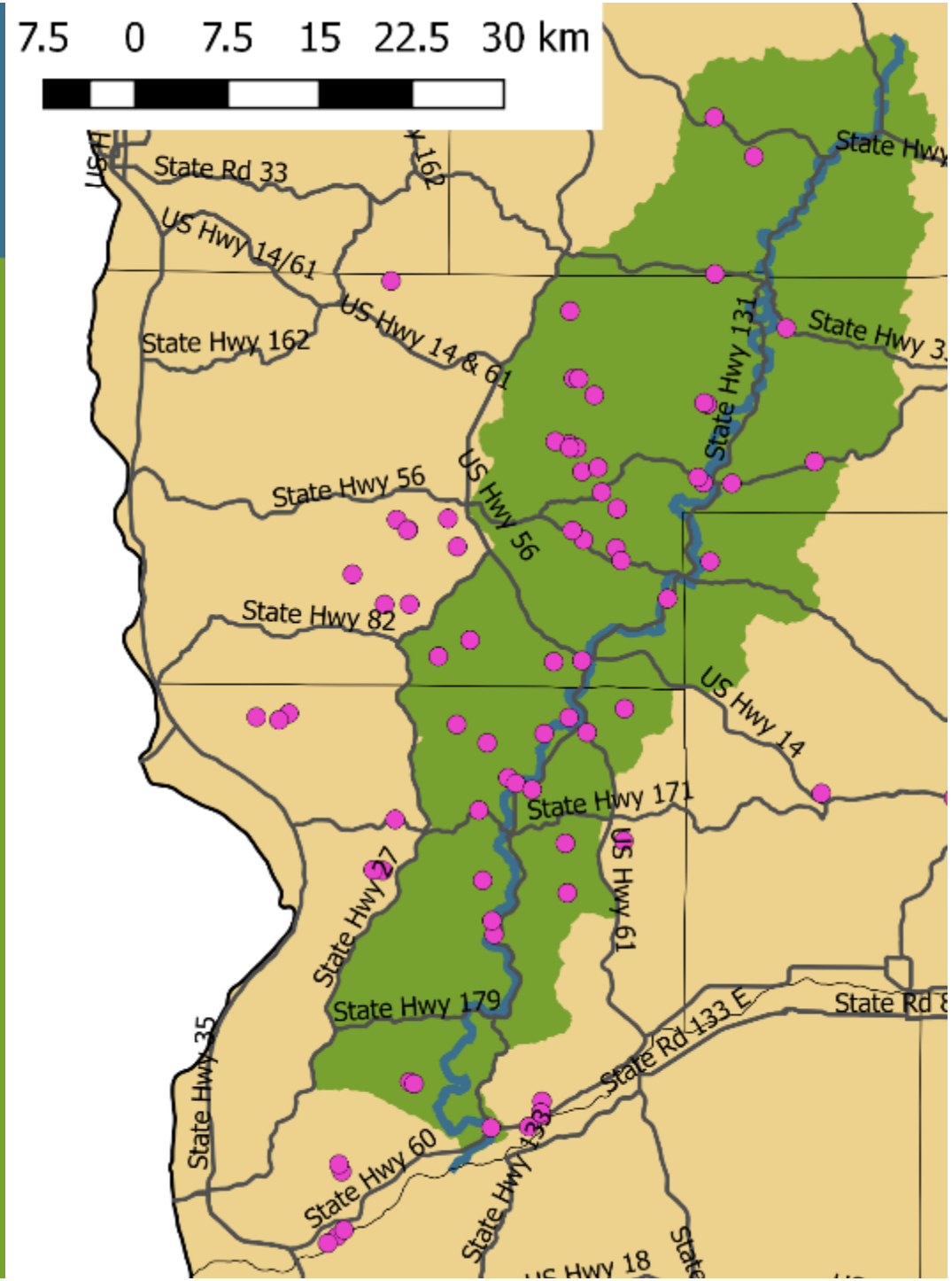

GIS Resource Center

- **Database of local GIS layers**
  - **190+ GB**

Layers Include:

- Aerial Photos
- Soils
- Hyrdrology
- 5ft Contour Lines
- LiDAR
- Geology
- Land Cover
- Parcel Boundaries
- Roadways

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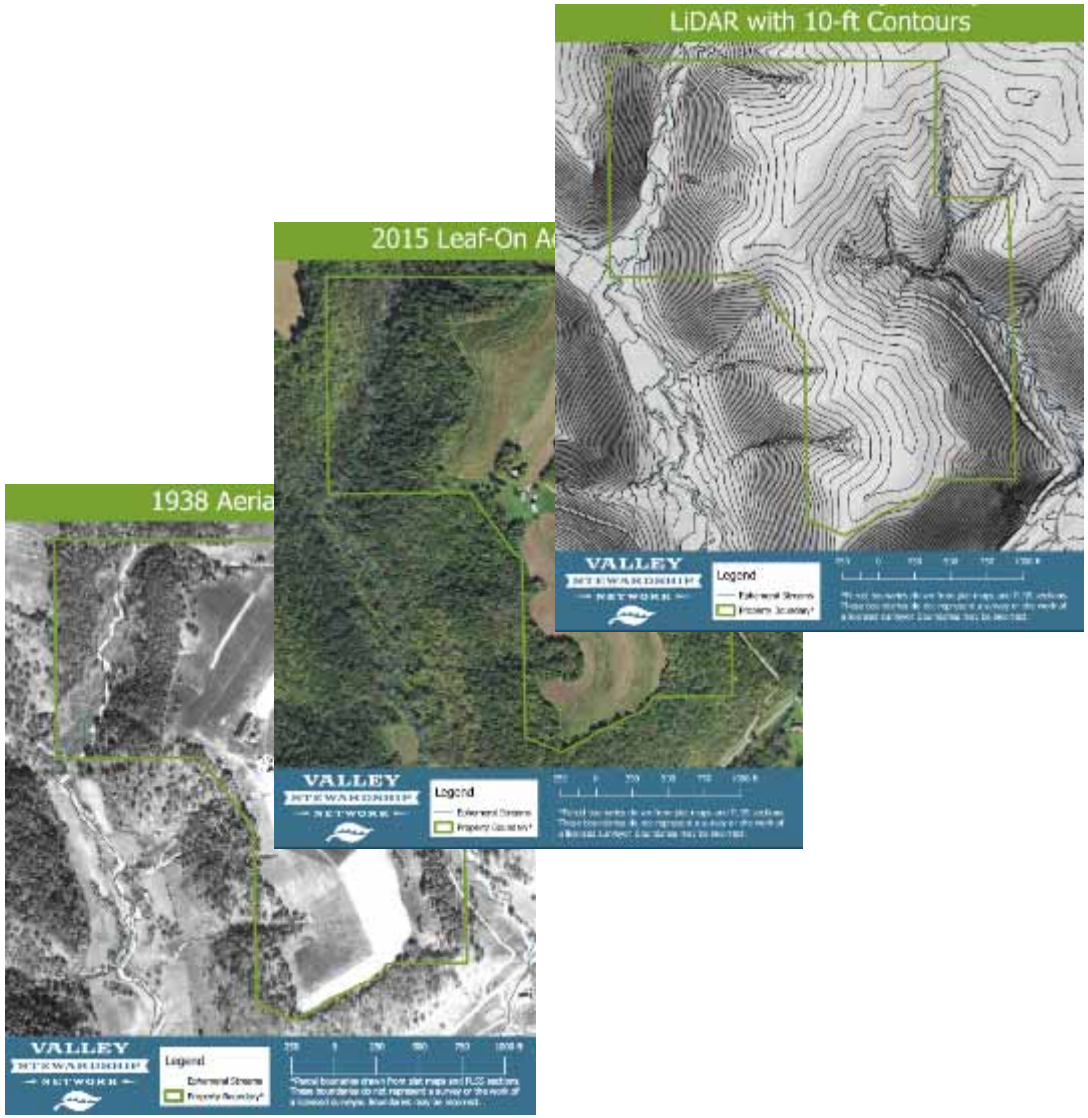

Example: Tainter Creek Watershed

- Crawford & Vernon Counties
- Class 1 Trout Stream
- 33,600+ acres (over a quarter in row crops)
- Identified as having high potential for producer engagement by county conservation agents

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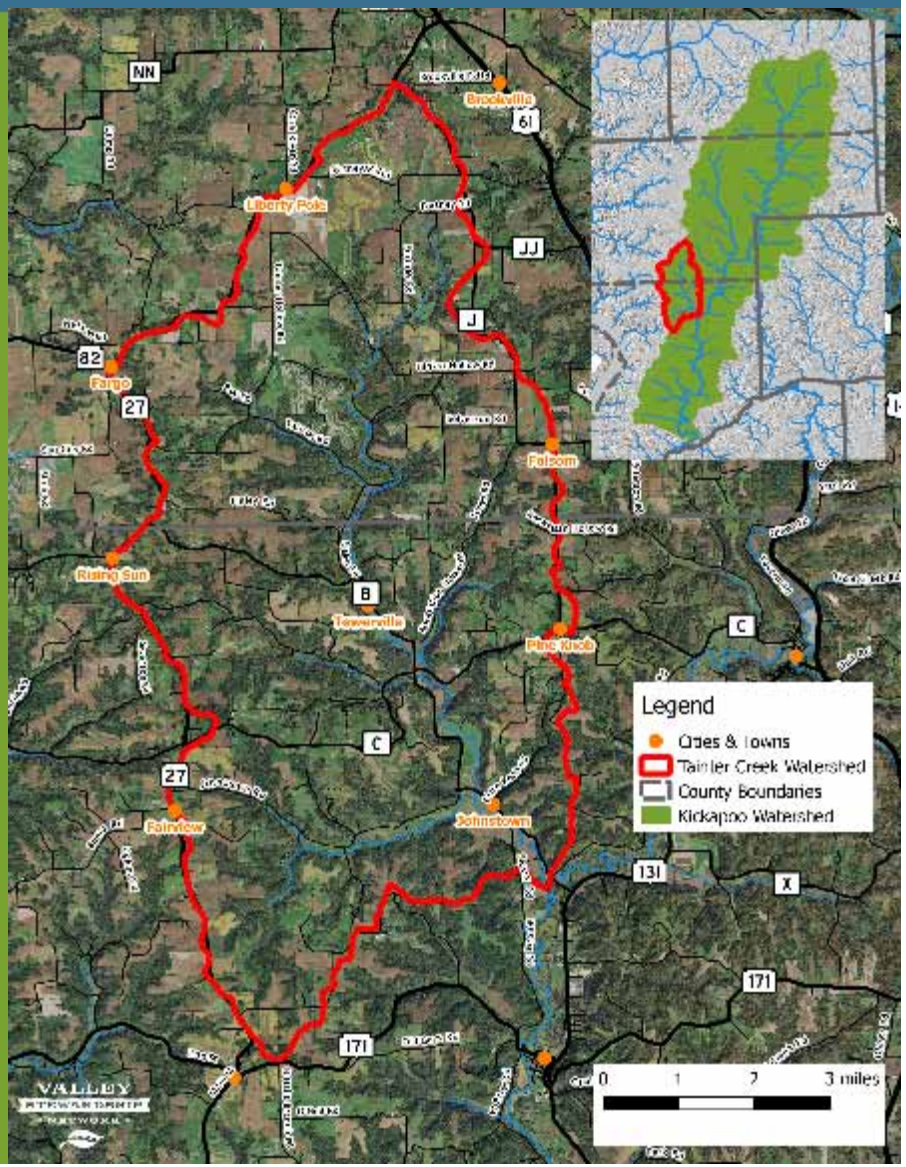
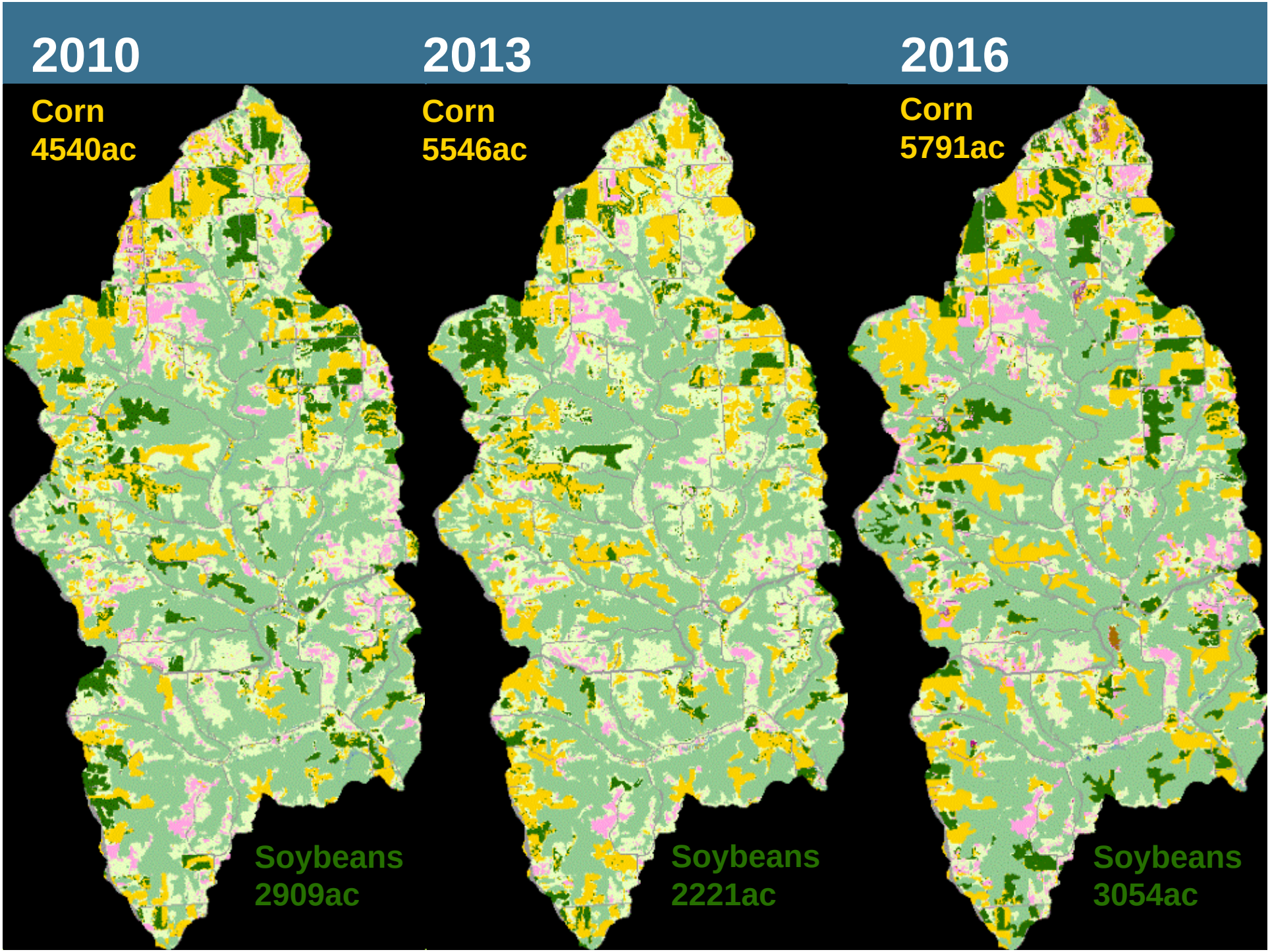
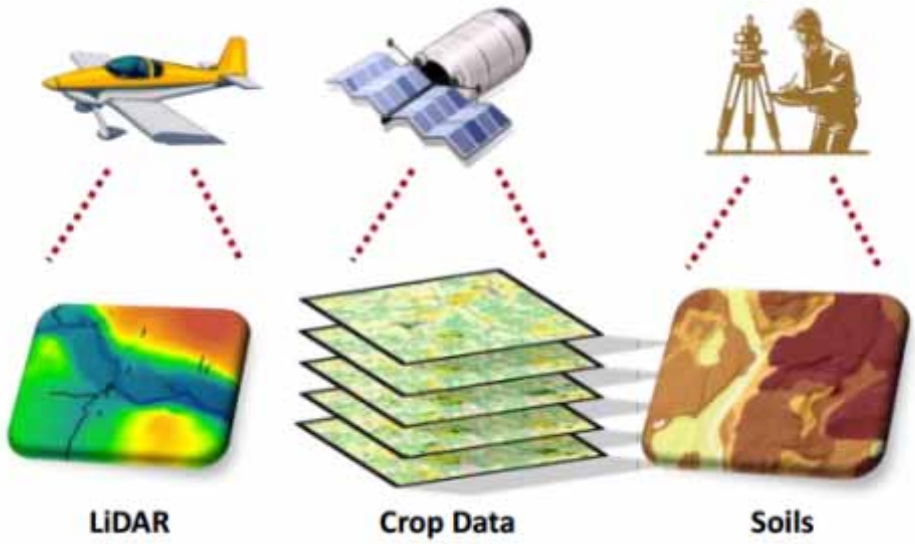


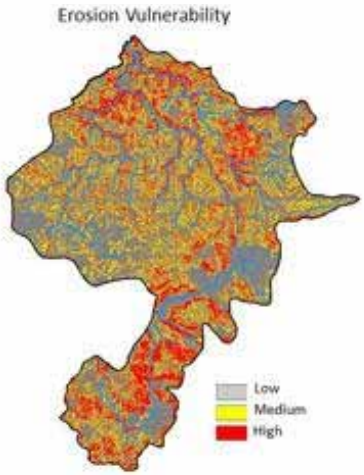

2010
Corn
4540ac
Soybeans
2909ac
2013
Corn
5546ac
Soybeans
2221ac
2016
Corn
5791ac
Soybeans
3054ac

EVAAL Model

EVAAL
Erosion Vulnerability Assessment for Agricultural Lands

- **Combines**
  - Slope (LIDAR)
  - Cropping Changes
  - Soil Characteristics
- **Outputs**
  - Erosion Vulnerability
- **Identify**
  - Areas with high conservation potential
- **Engage Volunteers**
  - Ground Truth





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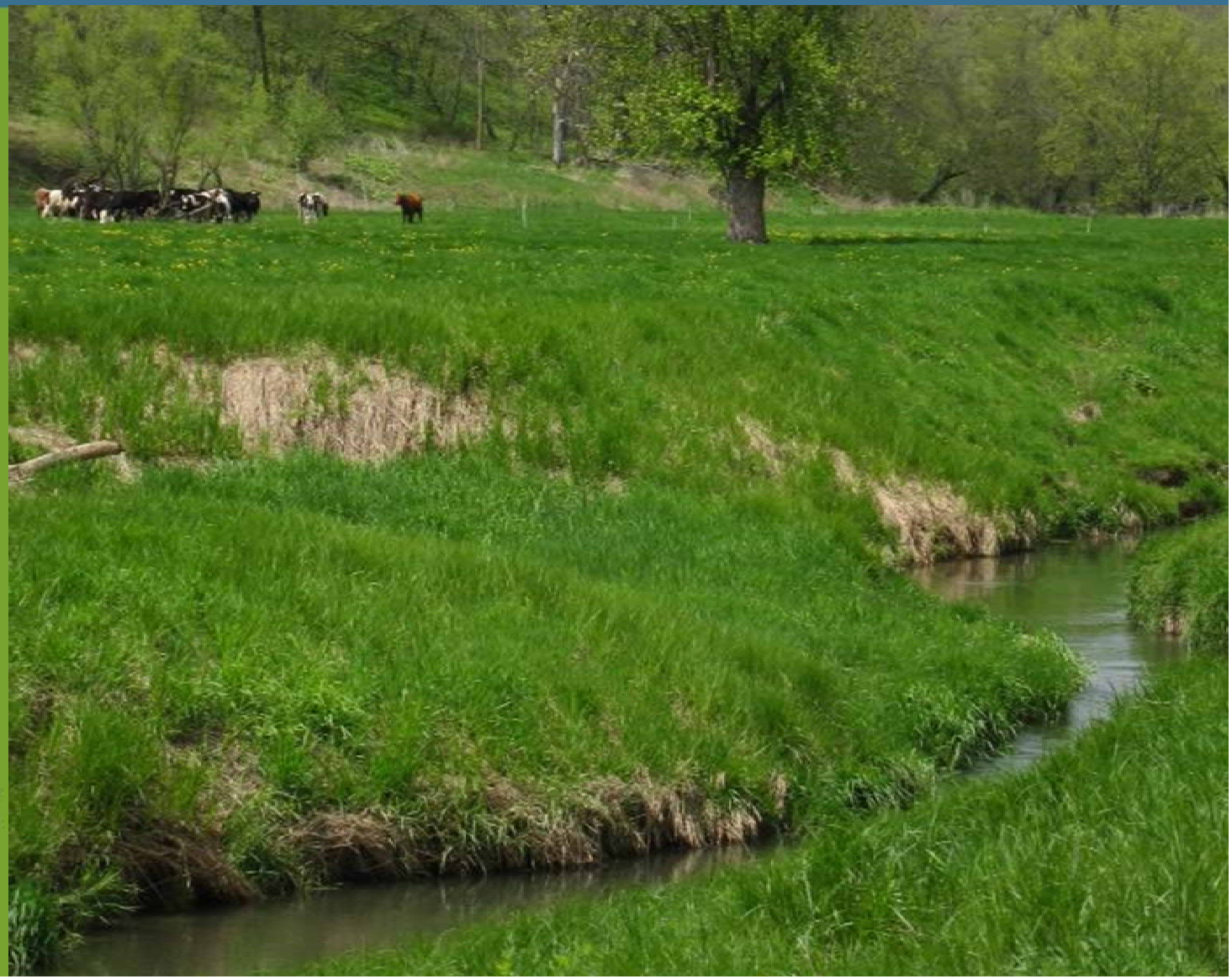
WISCONSIN DEPT. OF NATURAL RESOURCES

Summary

- **Categorize Subwatersheds**
  - **GIS (Land Cover, Erosion Vulnerability, etc.)**
  - **Targeted Sampling (Macroinvertebrates, Total Phos.)**
  - **Past and Present WAV data**
- **Piece by Piece**
  - **Start with a few priority watersheds to develop tools**
  - **Apply tools to a few watersheds at a time**
- **Affect Local Decision Making**
  - **Share with partners**
  - **Identify priorities**
  - **Engage in conservation efforts**

Discussion/Questions

Funding and Support by:

- Citizen-based Monitoring Network
- Kickapoo Pasture Project
- Wallace Center
- Water Action Volunteers
- WI DNR
- Crawford Stewardship Project

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