



### Agenda:

- Ecological Assessment of Priority Subwatersheds
- 20 miles of Riparian Restoration!!



The Illinois River and its tributaries will be a fully functioning ecosystem, where ecological protection, conservation, and economically productive uses:

- support diverse aquatic and riparian communities,
- meet all state and federal water quality standards,
- promote economic sustainability, and
- provide recreational opportunities.



The Illinois River Watershed Partnership works to improve the integrity of the Illinois River through:

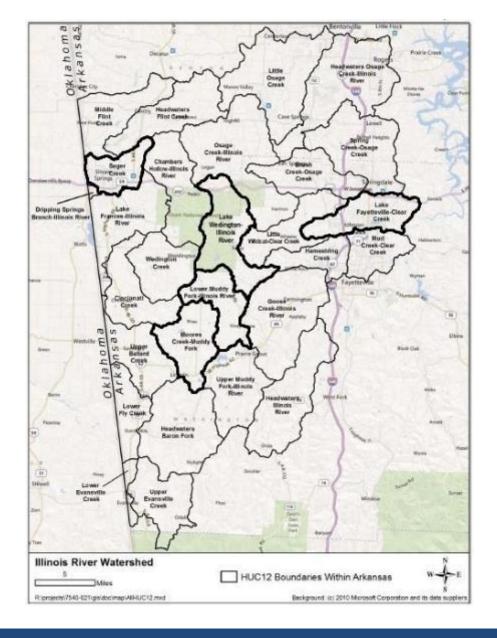
- public education and community outreach,
- water quality monitoring, and
- the implementation of conservation and restoration practices throughout the watershed.





# Priority Subwatershed Strategy





### 2016 Impaired Subwatersheds, ADEQ

Subwatershed	Impairment
Sager Creek	Nitrate
Moore's Creek	Sulfate, Pathogen
Lower Muddy Fork	Pathogen
Clear Creek at Lake Fayetteville	Pathogen
Clear Creek at Mud Creek	Sulfate, Pathogen
Upper Muddy Fork	Pathogen
Illinois River	Chloride, Sulfate, Pathogens





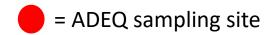
### Ecological Assessment of Priority Subwatersheds

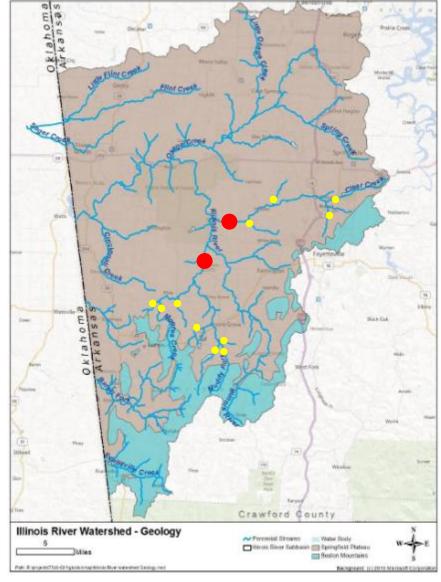
(project managed by Casey Rector)



### Goals:

- In-depth assessment of impaired subwatersheds
- Identify potential "hotspots" within each subwatershed
- Target outreach and education efforts







## Goal: In-depth assessment of priority subwatersheds for water quality and ecosystem health

- Partnered with local EAST Initiative schools
- Assessments:
  - Land use and aquatic habitat
  - Macroinvertebrate community
- In 2018, monitored four to five locations within priority subwatersheds three times





### Sampled April, August, November 2018

#### Habitat Assessment

- Utilized EPA's Volunteer Stream Monitoring: A Methods Manual
- 300 foot stream reach divided into 75 ft sections: 4 observations/reach
- Qualitative, visual data collected

### Macroinvertebrate Communities

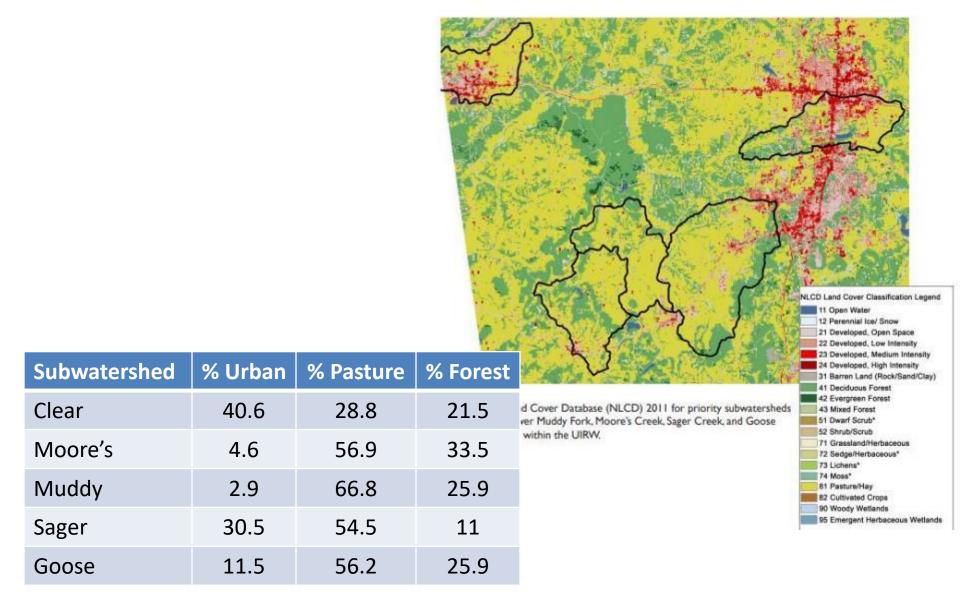
- Composite of three 3' x 3' riffle locations
- Site rating calculation accounts for pollution sensitivity and relative abundance of each species





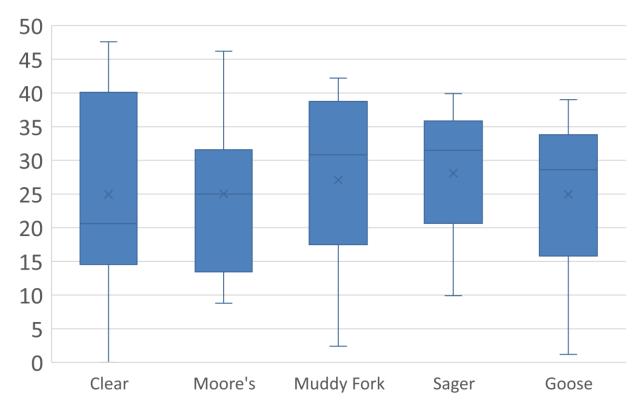






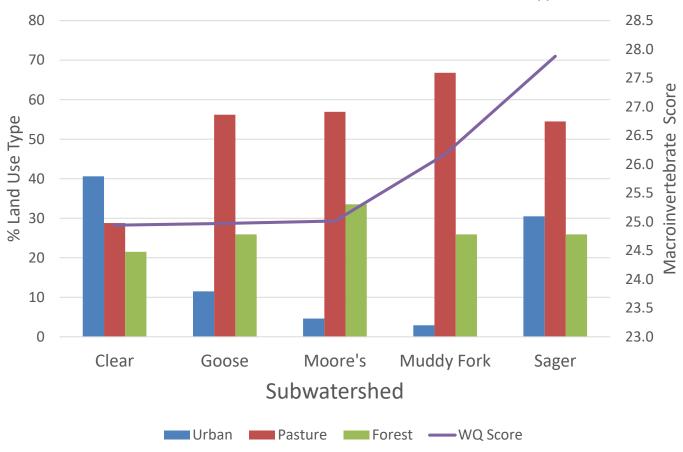


### Macroinvertebrate Scores Across Subwatersheds





### Macroinvertebrate Score versus 2012 Land Use Type





### Macroinvertebrate Scores Across Sites

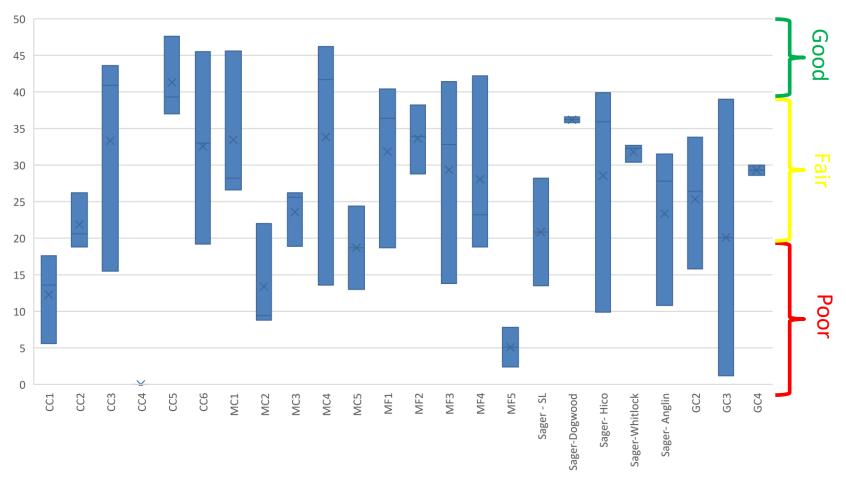




Table 1. Average 2018 seasonal water quality rating for the Clear Creek watershed.

Spring
Summer
Fall





Figure 1. Spring 2018 WQ (Water Quality) rating for sampling sites within the Clear Creek watershed.



Figure 2. Summer 2018 WQ rating for sampling sites within the Clear Creek watershed.

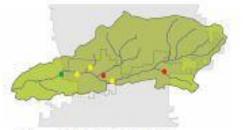


Figure 3. Fall 2018 WQ rating for sampling sites within the Clear Creek watershed.



Table I. Average 2018 seasonal water quality rating for the Moore's Creek watershed.

Spring
Summer
Fall





Figure 1. Spring 2018 WQ rating for sampling sites within the Moore's Creek watershed.



Figure 2. Summer 2018 WQ rating for sampling sites within the Moore's Creek watershed.



Figure 3. Fall 2018 WQ rating for sampling sites within the Moore's Creek watershed.

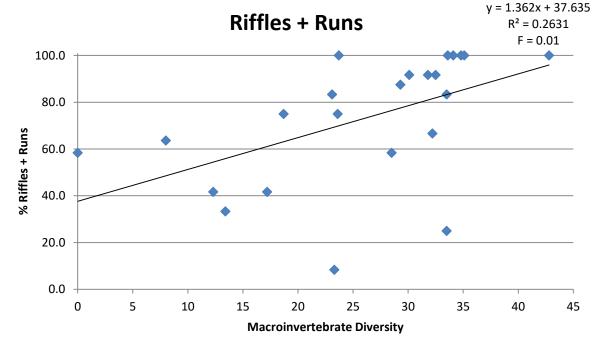


### Parameters tested against macroinvertebrate diversity score (% of observations where present)

Algae	Riffles
Riparian Area Lawn	Riffles and Runs
Riparian Area Trees	Pools
Streambank Trees	Some Silt/Clay

Some Clay, Silt, Sand on Stream

Some Sand





- Continue to collect macroinvertebrate data through 2019
- Expand project into Oklahoma:
  - Two-year baseline study
  - Followed by every other year study in AR and OK
- Incorporate flow into collected parameters
- Identify and build relationships with landowners at high priority sites





## Riparian Restoration Program

(project managed by Travis Chaney)



- Re-purposed state funding for 2009 CREP program.
- 1:1 match from private sources.

### Goals:

- 1. 20 miles of riparian restoration
- 2. 2 square miles (1,358 acres) of rotational grazing systems
- 3. 42,000 linear feet (7.95 miles) of fencing

### Advantages:

- Flexible eligibility
- Minimum paperwork
- Holistic conservation plan
- Customized options



### **Eligibility:**

- Riparian areas with low rates of streambank erosion
- Within priority HUC 12 subwatersheds
- Perennial or intermittent stream must be present on parcel
- Urban or rural lands
- Public or privately-owned lands

#### "Asks" from Landowners:

- Provide 25% match (can be in-kind, financial, or sourced from other federal or state programs)
- Installation and practice lifespan will be based on NRCS specifications

#### **IRWP** will:

- Provide 75% of project costs
- Manage design and installation of each projects
- Provide one-year of maintenance





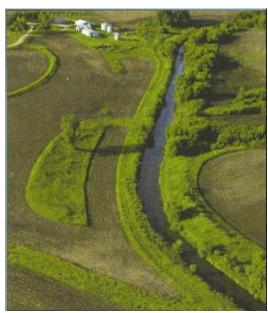
Riparian Forest Buffer



Wetland Enhancement



Fencing and Alternative Watering



Field Borders and Filter Strips



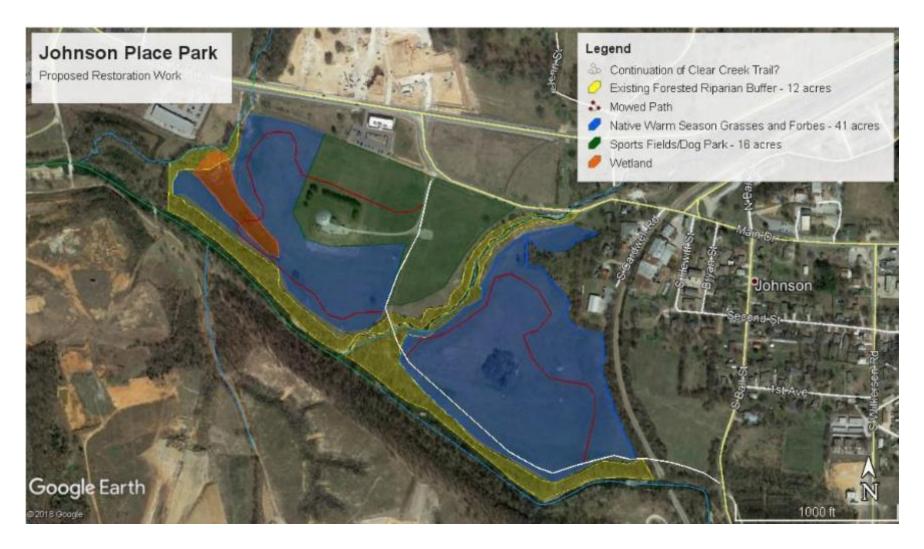
### Program advertising:

- Mailers
- Door hangers
- Field Tours
- One-on-one meetings
- Leveraged IRWP's existing network

Designs and landowner agreements for 5.98 miles with six landowners (including BGO!).

Designs underway on additional 1.5 miles with three landowners.





53 acres, 1.43 miles of Clear Creek + tributaries



### **Restoration plan:**

- 2019: Herbicide application + prescribed burn + grass seeding
- 2020: Forest management, selective herbicide + prescribed burn + grass seeding
- 2021: 2020 + wetland enhancement





A family enjoys the mowed paths at Woolsey Wet Prairie in Fayetteville



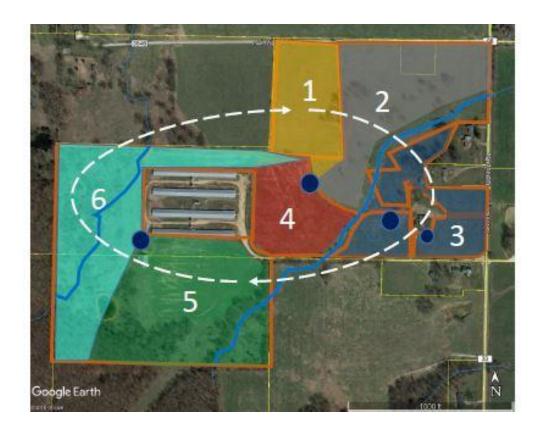






80 acres, 0.85 miles on two Moore's Creek tributaries





### **Planned activities:**

- 5 acres: Reforest or grassed waterway on riparian areas
- 11 acres: Remove woody invasive plants species, reestablish native grasses and forbs
- 54 acres: Rotational grazing system
  - Watering facilities
  - Heavy use area protection
  - Fencing





## Thank you for your time and wish us luck!

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