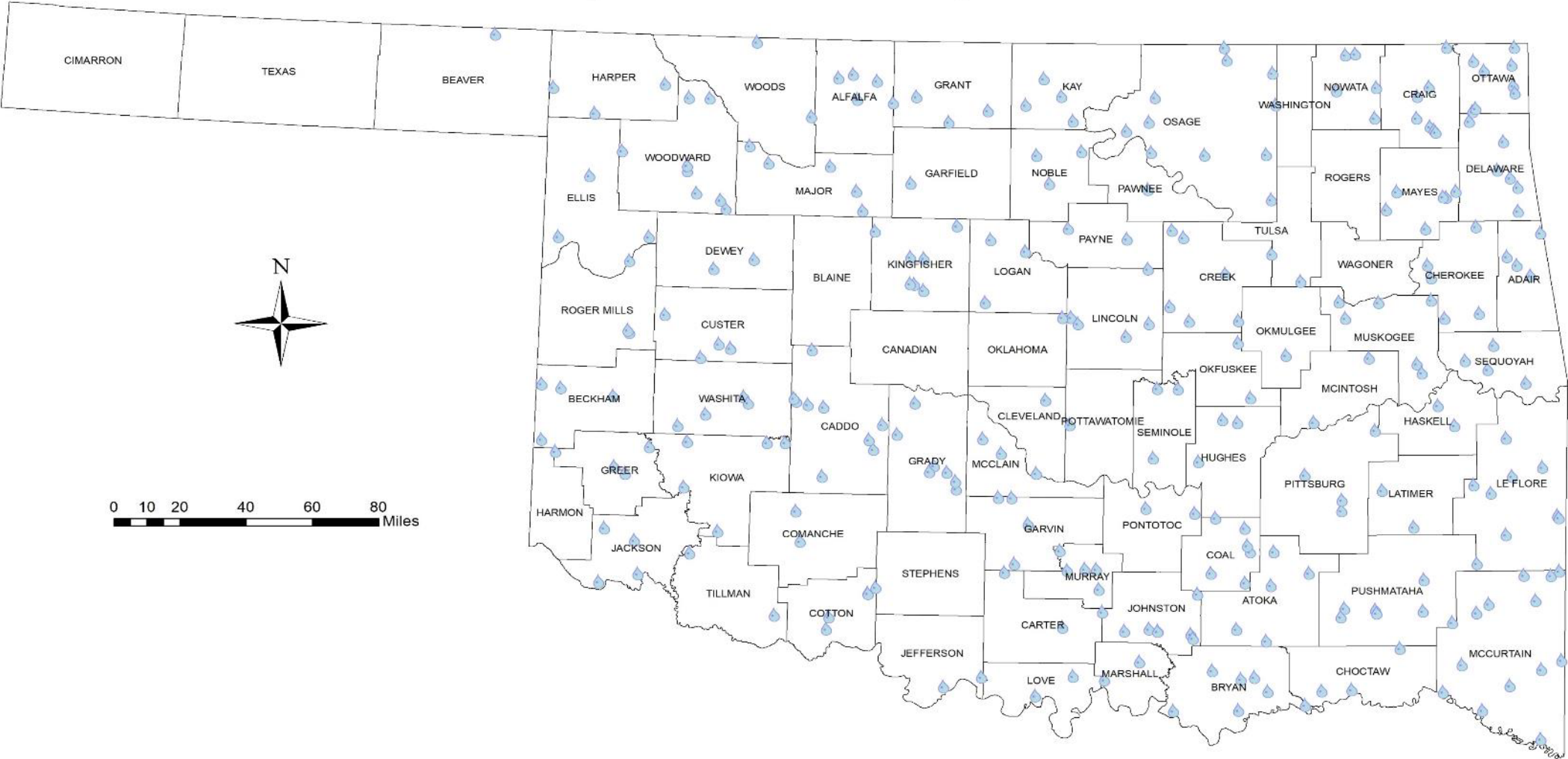




Data-Driven Conservation: Turning Challenges Into Solutions



OCC Rotating Basin Monitoring Sites (2025)



2025 Oklahoma Nonpoint Source Success Stories



Legend

County Boundaries

Success Story Watersheds

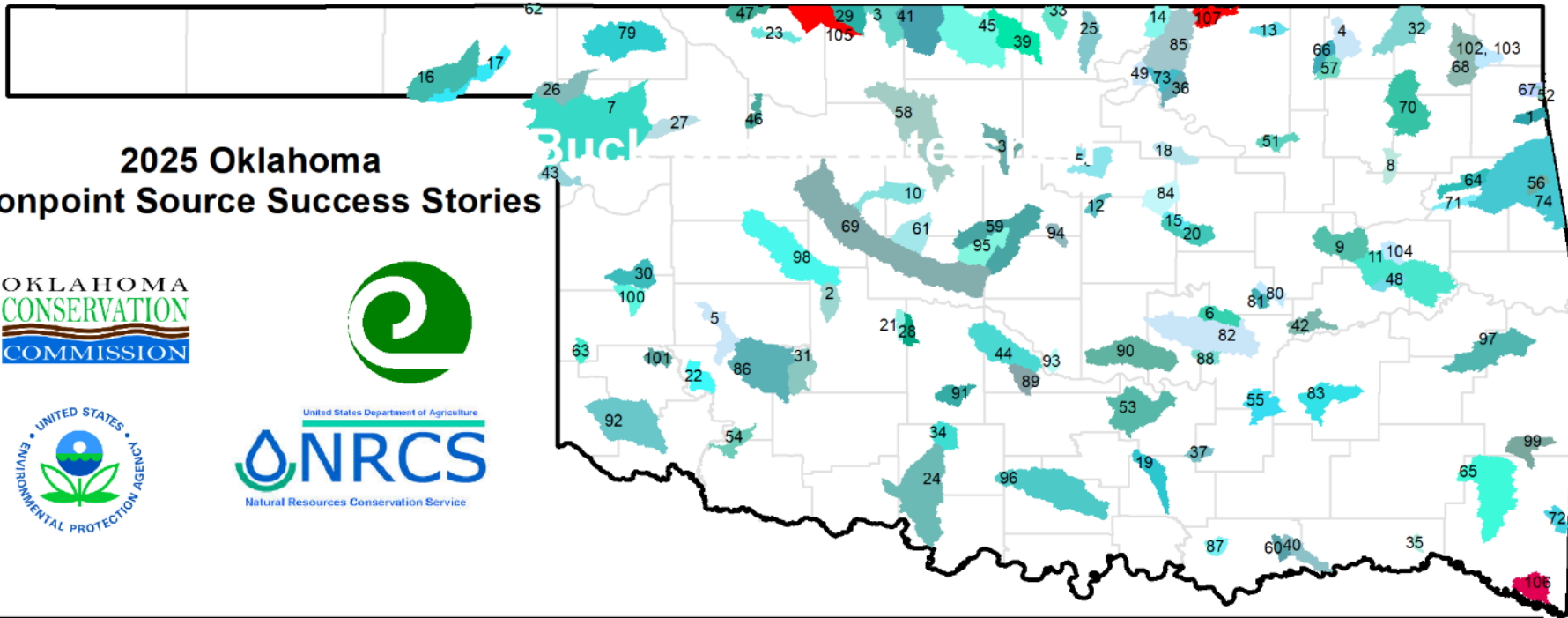
Alabama Creek (81)
Bad Creek (80)
Beaty Creek (1)
Beaver Creek (Jefferson Co.) (24)
Beaver Creek (Osage Co.) (14)
Big Creek (32)
Big Eagle Creek (99)
Bird Creek (35)
Bird Creek (Hughes Co.) (88)
Bitter Creek (33)
Bois d'Arc (25)
Brazil Creek (97)
Buck Creek (107)- NEW!
Buffalo (Harper Co.) (79)
Bull Creek (8)
Butler Creek (104)
Caddo Creek (96)
California Creek (4)
Camp Creek (15)

Canadian Sandy Creek (53)
Caney Boggy Creek (55)
Clear Creek (Beaver Co.) (16)
Clear Creek (Harper Co.) (26)
Cloud Creek (9)
Commission Creek (43)
Coon Creek (94)
Cooper Creek (10)
Cottonwood Creek (59)
Cottonwood Creek (59) Deer Creek (95)
Crooked Creek (Beaver Co.) (62)
Crooked Creek (Grant Co.) (41)
Curl Creek (57)
Deer Creek (39)
Deer Creek (98)
Delaware Creek (51)
Dirty Creek (11)
Doga Creek (49)
Driftwood Creek (105)- NEW!
Duckpond Creek (17)
Dugout Creek (12)

Elk Creek (48)
Euchee Creek (84)
Finn Creek (89)
Fish (63)
Fourteenmile Creek (64)
Glover River (65)
Goose Creek (37)
Gray Horse Creek (36)
Hogshooter (66)
Honey Creek (52)
Honey Creek (67)
Horse and Little Horse Creeks (102-103)
Illinois River (74-78)
Indian Creek (27)
Ionine Creek (28)
Lagoon Creek (18)
Lake Creek (2)
Lake Creek (Greer Co) (101)
Little Cabin Creek (68)
Little Elk Creek (5)
Little Wewoka Creek (6)

Main Creek (46)
Medicine Lodge River (29)
Mill Creek (42)
Mineral Bayou (87)
Mission Creek (13)
North Canadian River (69)
Otter Creek (Garfield Co.) (38)
Otter Creek (Tillman Co.) (54)
Peaceable Creek (83)
Peachwater Creek (56)
Pennington Creek (19)
Pond Creek (45)
Pryor Creek (70)
Rainy Mountain Creek (86)
Ranger Creek (71)
Roaring Creek (91)
Rock Creek (72)
Salt Creek (20)
Salt Creek (Osage Co.) (73)
Salt Creek (Osage Co.) (73) (85)

Salt Creek (Pott. Co) (90)
Sandstone Creek (30)
Sandy Creek (3)
Stillwater Creek (50)
Stinking Creek (Caddo Co.) (21)
Stinking Creek (Kiowa Co.) (31)
Sulphur Creek (60)
Tepee Creek (22)
Timber Creek (100)
Turkey Creek (58)
Turkey Creek (Jackson Co.) (92)
Turkey Creek (Woods Co.) (23)
Walnut Creek (44)
Wewoka Creek (82)
Whitegrass Creek (40)
Wildhorse Creek (34)
Willow Creek (93)
Winter Camp Creek (61)
Wolf Creek (7)
Yellowstone Creek (47)



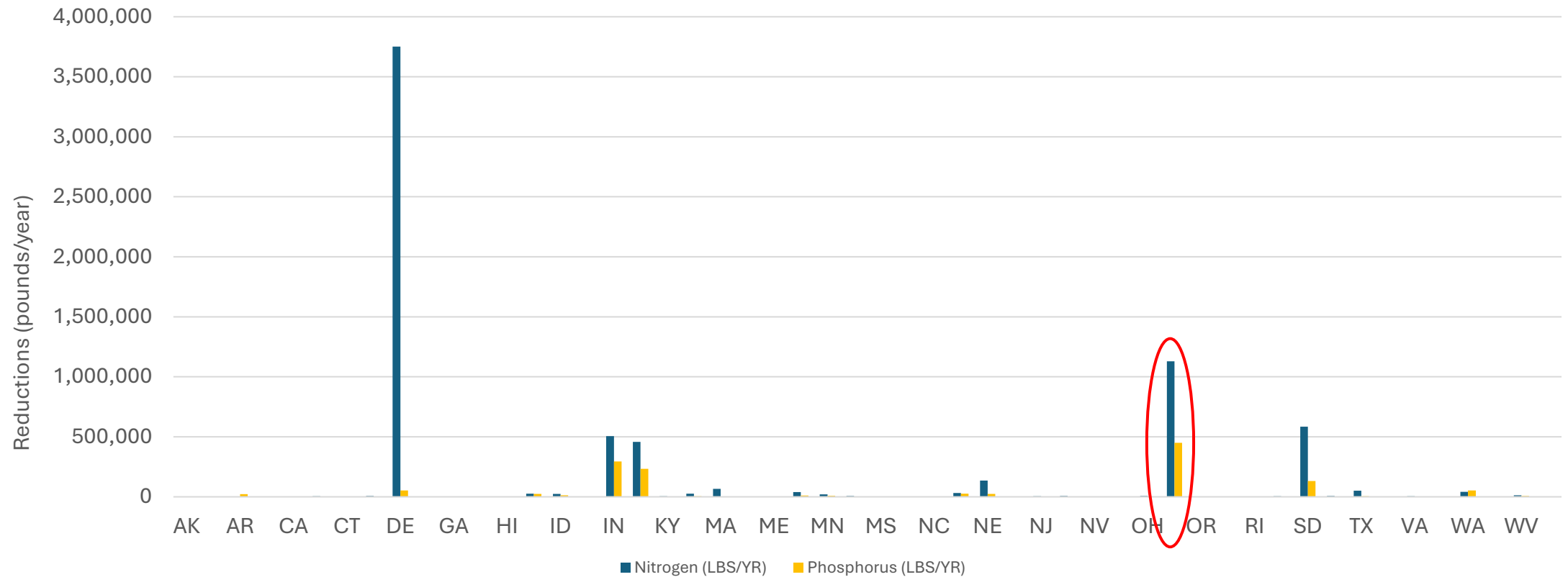
State	Nitrogen	rank	Phosphorus	rank	Sedimentation	rank
AK	0	47	0	48	0	47
AL	70	38	10	41	6	40
AR	0	47	21,500	10	7,250	12
AZ	294	35	328	31	85	32
CA	10	41	0	48	12,792	9
CO	4,209	26	209	33	11	37
CT	483	34	95	36	29	34
DC	6,942	18	323	32	0	47
DE	3,751,565	1	53,849	5	17,063	7
FL	0	47	0	48	0	47
GA	761	33	186	34	193	30
GU	0	47	0	48	0	47
HI	825	32	81	37	211	28
IA	26,211	13	23,355	9	89,718	3
ID	24,817	14	12,431	11	7,327	11
IL	1,372	31	677	26	534	25
IN	506,277	4	295,153	2	86,934	4
KS	457,471	5	233,990	3	170,399	2
KY	4,983	24	1,174	22	362	27
LA	26,898	12	5,887	15	450	26
MA	66,292	7	1,984	18	55	33
MD	0	47	0	48	0	47
ME	1,641	30	588	28	717	22
MI	39,423	10	10,946	12	2,728	17
MN	19,556	15	7,965	13	5,401	13
MO	6,316	20	1,204	21	116	31
MS	2,249	27	1,125	23	1,323	20
MT	129	37	131	35	1,458	19
NC	197	36	45	38	11	38
ND	31,047	11	25,799	7	28	35
NE	134,577	6	24,425	8	15,432	8
NH	39	39	12	40	7	39
NJ	4,660	25	1,754	19	4,835	15
NM	7,111	17	2,851	17	5,187	14
NV	2,222	28	666	27	564	23
NY	0	47	0	48	0	47
OH	6,549	19	950	25	765	21
OK	1,128,657	2	450,692	1	10,369	10
OR	0	47	0	48	0	47
PA	21	40	2	42	16	36
RI	0	47	0	48	0	47
SC	5,755	22	1,393	20	3,712	16
SD	584,871	3	132,409	4	54,149	5
TN	6,108	21	1,072	24	552	24
TX	51,119	8	4,500	16	1,466	18
UT	2,122	29	540	29	0	47
VA	5,246	23	374	30	920,734	1
VT	0	47	23	39	0	47
WA	41,271	9	52,193	6	17,263	6
WI	0	47	0	48	0	47
WV	13,085	16	7,009	14	204	29
WY	0	47	0	48	0	47
Total	6,973,452		1,379,897		1,440,454	

Oklahoma

#1 — Phosphorus

#3 — Nitrogen Reduction

2024 National EPA Nonpoint Source Program Load Reductions by State



Data Dashboard Hub



Scientific Research and Development Group

About the Program

The Scientific Research and Development Group is nested within the Oklahoma Conservation Commission's Water Quality Division. The mission of the program is to manage and assess collected data and report to policy makers, conservation partners, and the general public.

Monitoring

There are multiple sources of monitoring data that the Scientific Research and Development Group manages. The Rotating Basin Monitoring Program is the largest program in the Water Quality Division and is tasked with monitoring non-point source pollution in wadeable streams across the state. The Rotating Basin Monitoring Program has been collecting physical, chemical, and biotic parameters and reports to the U.S. Environmental Protection Agency (EPA). Each year the Scientific Research and Development Group creates a [Rotating Basin Report](#) that presents recent status and trends of monitored streams as well as potential stressors to those streams. Additional biotic monitoring data is obtained through the Blue Thumb Program, although their mission is education and outreach rather than formal reporting. Blue Thumb uses the same EPA approved methods as the Rotating Basin Monitoring Program to collect macroinvertebrates and fish. The Scientific Research and Development Group uses data from both programs to inform the State Integrated Report every two years. These data are available at the [Water Quality Data Portal](#). Although there is not currently a continuous wetlands monitoring protocol, the Oklahoma Conservation Commission's Wetlands Program has created [Wetlands Assessment Protocol](#) that allows the state's wetlands to be graded in a similar manner as wadeable streams.

Rotating Basin Report



[Go to Dashboard](#)

Check out the interactive Rotating Basin Report dashboard to explore the status, trends, and potential non-point source

Wetlands Assessment



[Go to Dashboard](#)

Evaluations of wetlands and protocols to assess wetlands can be found at this dashboard.

Water Quality Data Portal



[Go to Dashboard](#)

Looking for Data? This data dashboard provides access to water quality data.

Data Download



OCC Data Application

[Explore Data](#)

Data Download

Select Data Type:

Site Data

Select Project:

All

Date Range:

01/01/2001

-

12/31/2024

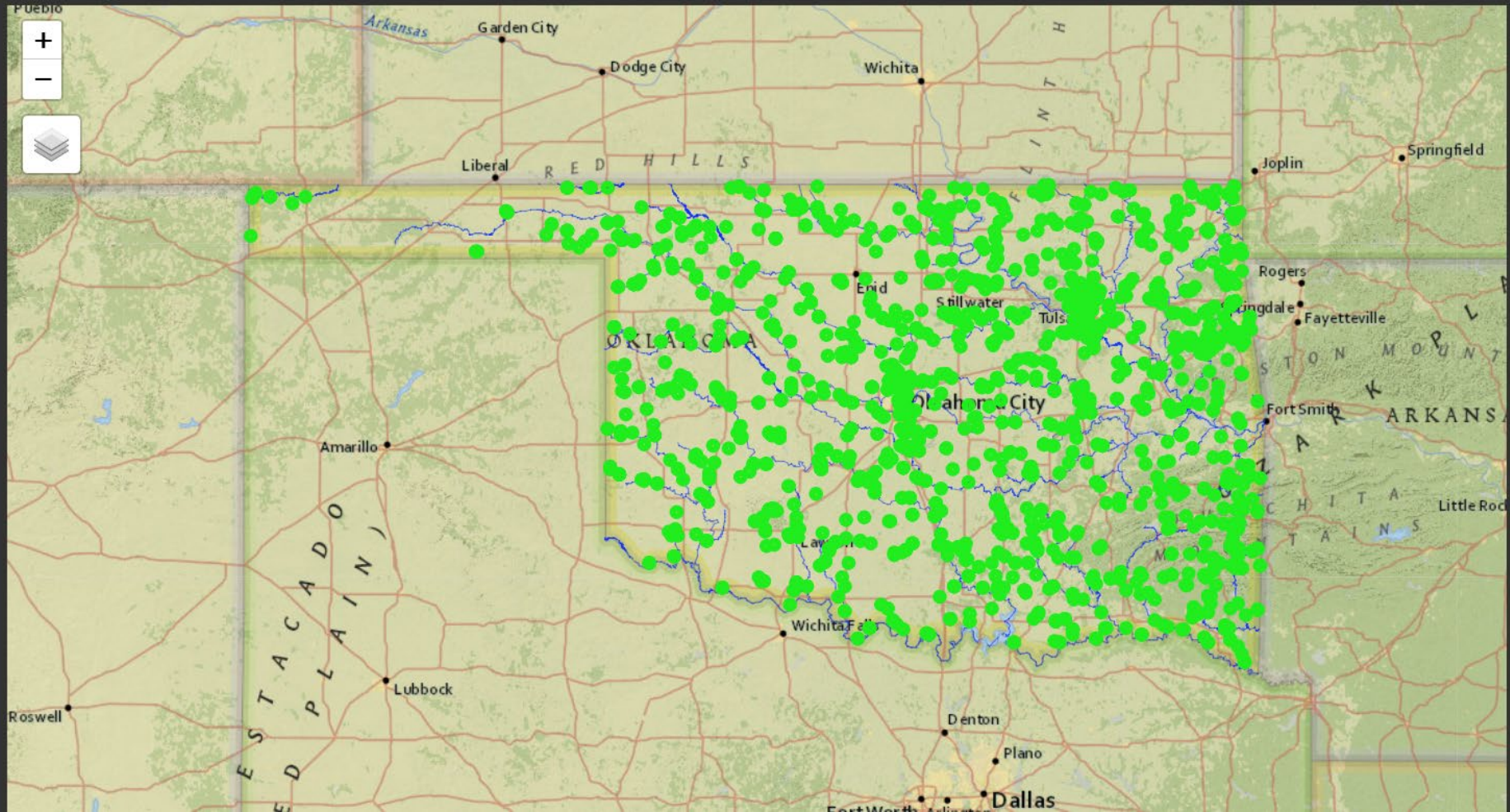
Select Location By:

☒ Select Multiple

- ☒ Statewide
- ☐ River Basin
- ☐ 8-digit HUC
- ☐ Site ID

Clear Selection

Download Data:



Site Summaries

One Creek

Rotating Basin Site Summary



This leaflet provides an overview of the water quality at One Creek. The data presented were collected between 2020 and 2022.

To evaluate water quality in streams, Oklahoma Conservation Commission (OCC) collects biological (fish and bugs), chemical (nutrients, salts, and turbidity) and physical (habitat) data in streams across Oklahoma. Each of these measurements are compared to scores from nearby high-quality streams. Additionally, a relative risk assessment (RRA) was conducted to determine the likely stressors to biota in the area.



Water Chemistry	Fish	Bugs	Habitat	Final	Grade
0.58	1	0.95	0.91	0.86	B

Each measurement score ranges from 0 (worst) to 1 (best). The water chemistry score is an average of nutrients, salts, pH, dissolved oxygen (DO), and turbidity measurements. The stream's final grade is an average of all measurements.

A stream's score is affected by activities in the upstream area that drains to the creek or watershed. OCC interprets monitoring data in order to identify **voluntary** best-management practice (BMP) recommendations for the watershed that can help improve water quality:



- One Creek is on the 303(d) list of impaired waterbodies for the DO metric. Additionally, we detected reduced turbidity, nutrient, and salt metrics.
- The site is not on the 303(d) list for any biotic metrics. According to the OCC biocriteria, the bug and fish assemblages were also in good condition.
- Based on the RRA, high nutrients are a common cause of poor biotic scores in the region. Nutrients often enter the stream with sediment but may also result from over-application of fertilizer and/or high densities of livestock in the watershed.
- Land managers have little to no influence over geology and industrial saltwater spills. However, evaporation can be reduced by minimizing tilling so that plant cover is allowed most of the year, as well as maintaining a riparian

Interactive Report



Rotating Basin Report

[Main Page](#) [Basin Description](#) [Statistical Methods](#) [Results Summary](#) [Full Reports](#)

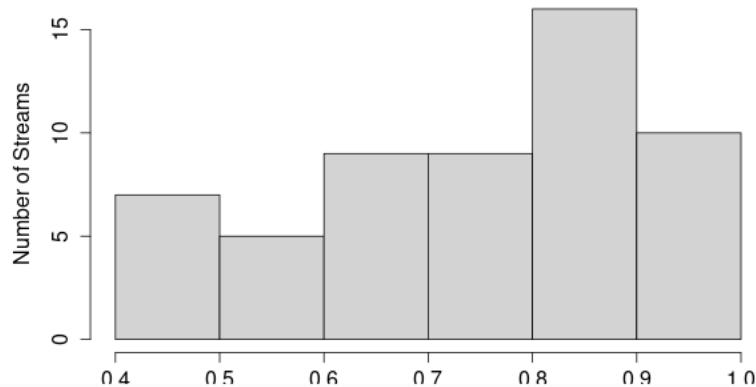
To assess the status of Oklahoma's streams, OCC monitors approximately 250 streams statewide, with roughly 50 streams monitored in each of five monitoring basins. Water chemistry, habitat, fish and macroinvertebrate communities at each stream are collected over a two-year period, and basins are rotated such that the entire state is monitored every five years. Each year we report on the quality of streams in a basin with the following objectives: (1) Assess the current health or **status** of streams, (2) Determine **trends** in streams that predict potential future water quality concerns, (3) Identify the key **stressors** or pollutants impacting stream quality, and (4) Identify potential landscape variables that are acting as **sources** of key stressors. Background information and more detailed methods can be found in the companion [Rotating Basin Report](#).

How to use the App: The results associated with each of the four objectives can be visualized by adjusting the 'Objective' drop-down menu below. Objective specific results can be further filtered using the 'Analysis' and 'Subcategory' drop-downs. The results are filtered according to the user selected parameters and displayed on the map. Methods and summary plots that support each objective are displayed in the left pane.

Objective 1: Status Methods

An "Overall Stream Score" is calculated for each stream. Scores range from 0 (worst) to 1 (best), and are an average of 4 component scores, water quality (WQ), habitat, fish and macroinvertebrates. All component scores are determined through comparison to high-quality reference streams in the same ecoregion. The WQ component score is an average of thirteen chemical parameters. Each parameter is scored based on the probability a random sample would fall within the range found at reference streams (1 = likely, 0.5 = possible, 0 = unlikely). 'E.coli' is an additional WQ parameter not included in the overall score and scores as follows: 1 = meets primary body contact standard, 0.5 = meets secondary body contact standard only, or 0 = fails both standards. Fish, macroinvertebrate, and habitat component scores are calculated by dividing the stream score by the mean at regional reference streams. Each of the component scores can be visualized by changing the 'Analysis' dropdown, and individual metric scores can be visualized by changing the 'Subcategory' dropdown.

Water Quality Score



Objective:

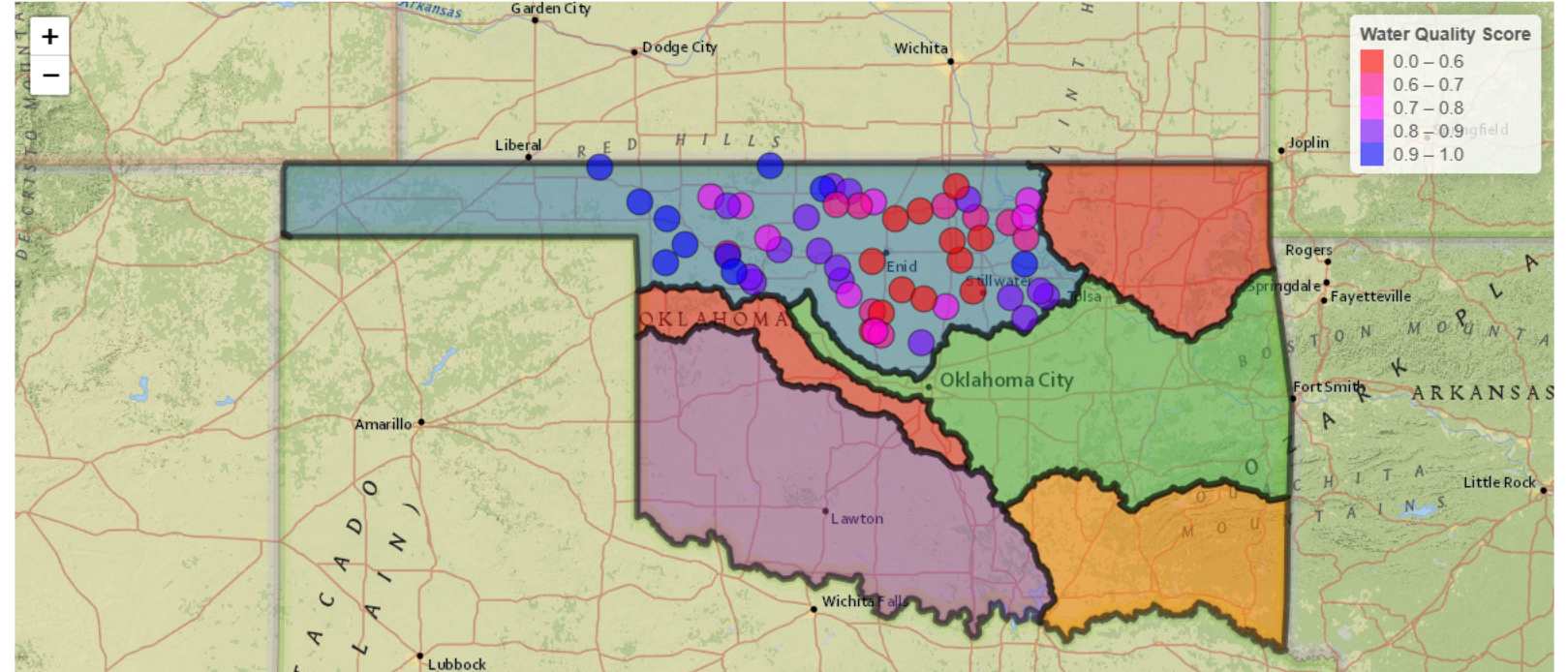
Status

Analysis:

-Water Quality

Subcategory:

Water Quality Score



Watershed Flood Control Program

With 2,107 flood control dams in 61 counties, Oklahoma leads the nation in protecting citizens and property from the devastation of floods. Roads and bridges, businesses and homes —dams make the Oklahoma way of life possible.

Only through continued investment in maintenance will future generations enjoy the promise of safety these structures offer.

\$102 Million

Average annual flood damage prevented.



O&M Performed



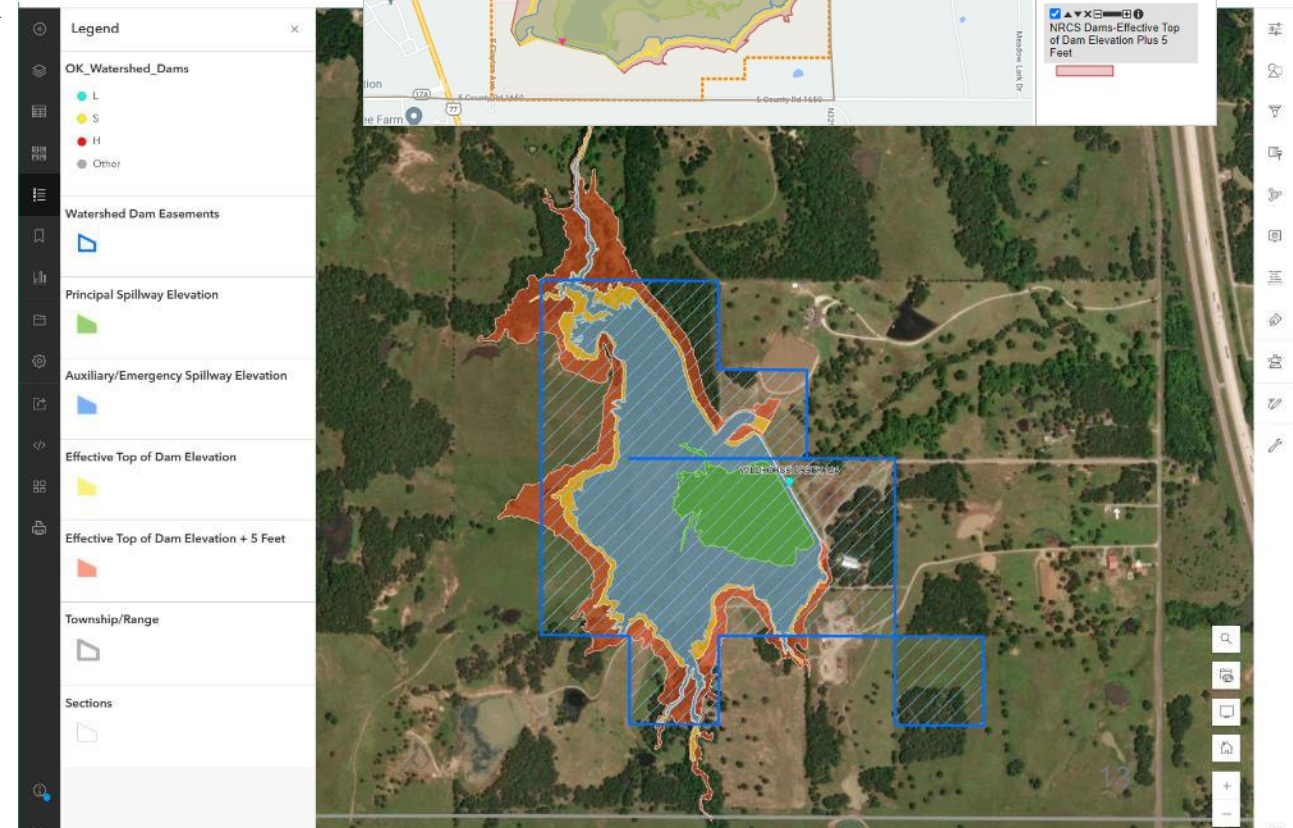
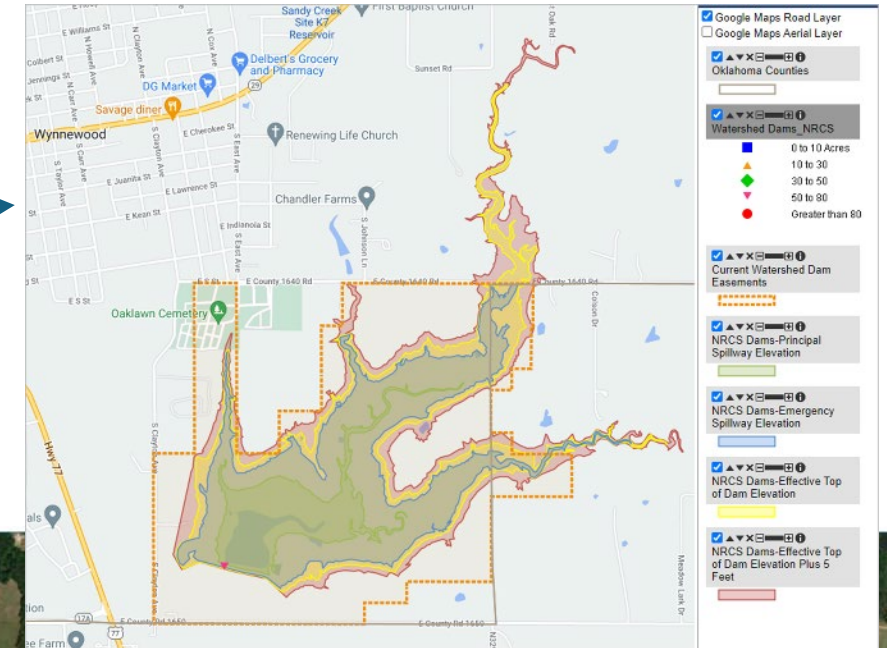


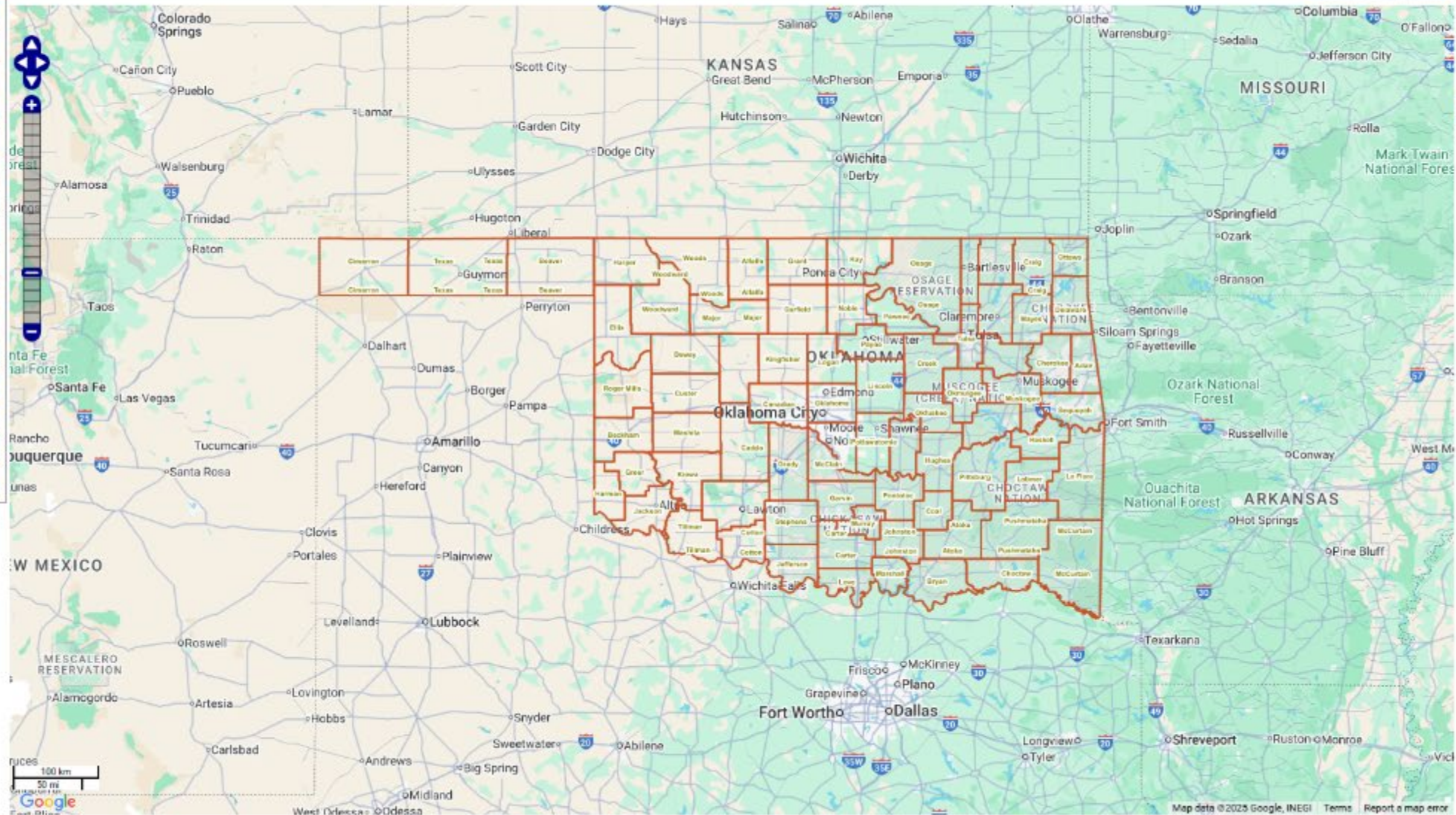
Watershed Dam Easement Mapping Project

- Started in Fall 2022
- Worked with Districts to gather easement documents.
- Over 8,000 easement outlines mapped
- Currently have 1,605 of 2,107 sites with “complete” coverage
 - “Complete” = Dam, spillways, and majority of flood pool covered through top-of-dam elevation. Some far-off tributaries off might not be covered.
- Flood pool elevations:
 - Principal spillway
 - Auxiliary/Emergency Spillway
 - Effective Top of Dam
 - Effective Top of Dam +5 feet
- “Complete” easement site data will be available online starting in November 2025

Online Maps

- OKMaps:
 - For downloads and Main Data Source
- ArcGIS Online:
 - Navigation and Searching
 - for Districts & Commission use
 - Reviewing Easement Gaps
 - for District use



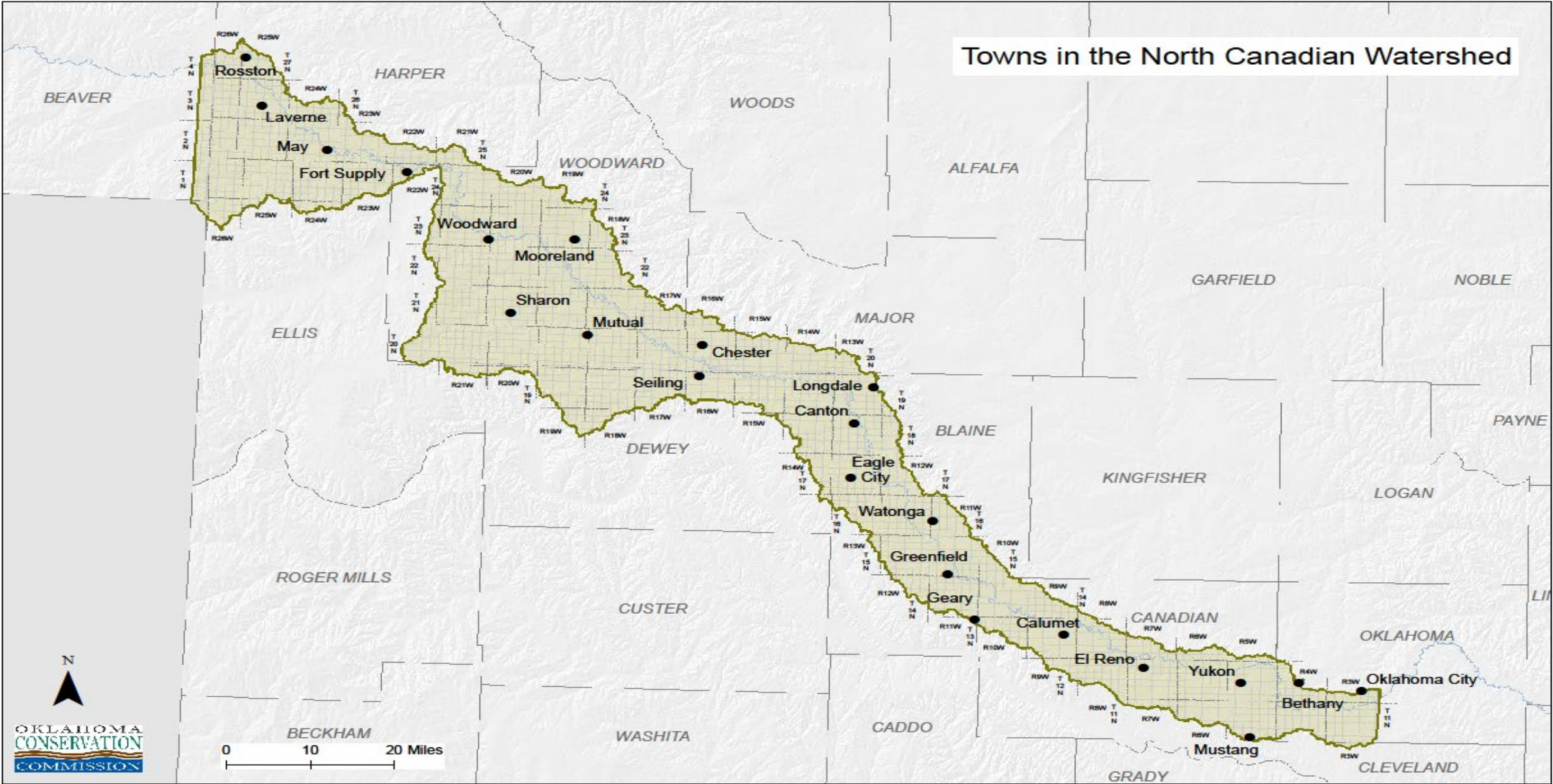


Measure: 0.00 mi
☐ Mouseover On

☒ Google Maps Road Layer
☐ Google Maps Aerial Layer

☒ Oklahoma Counties

Terry Peach North Canadian Watershed Project



Terry Peach Watershed Restoration Program



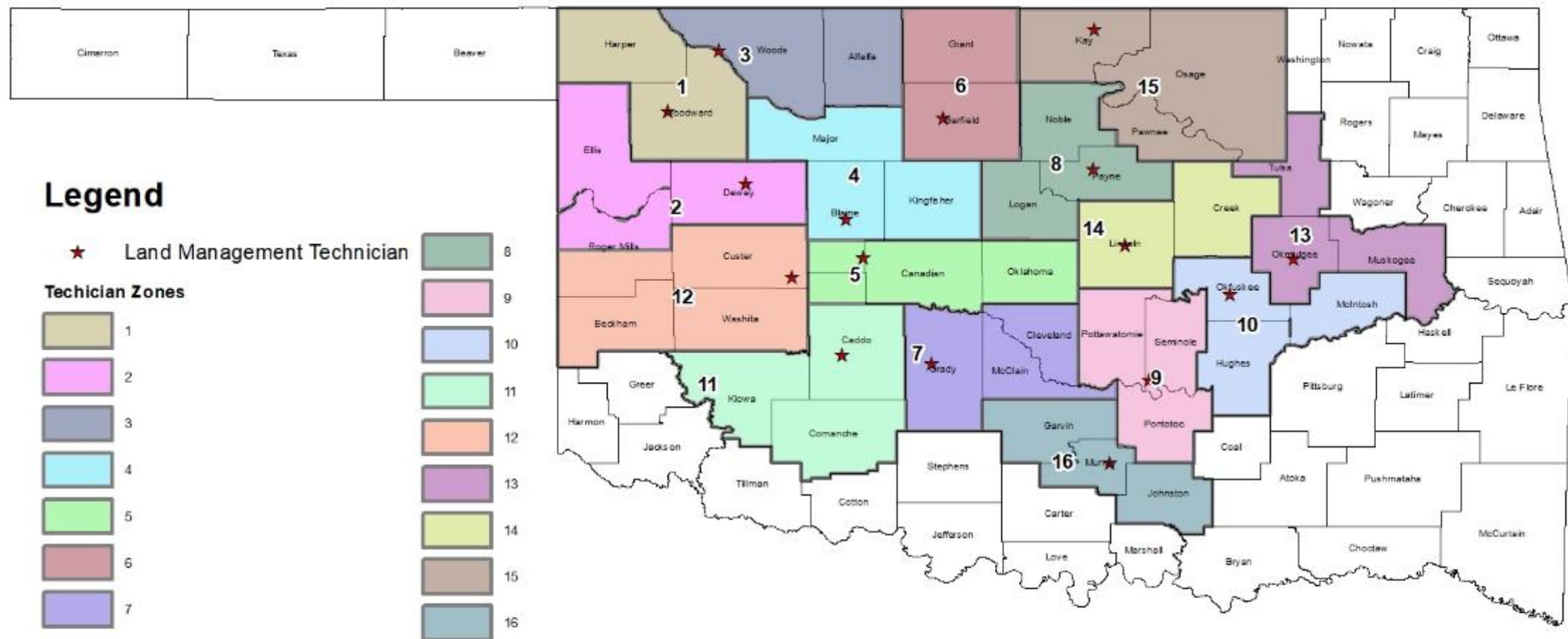
Legend



Oklahoma Conservation Commission
March 18, 2025



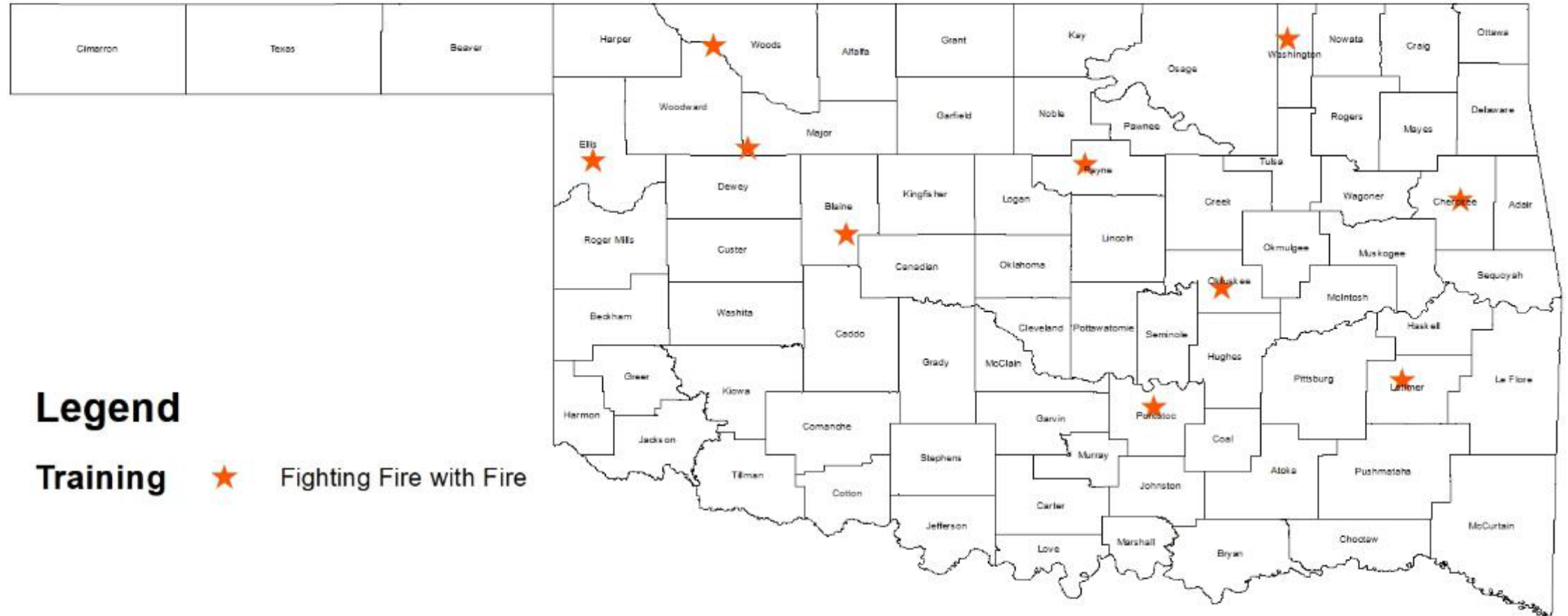
OCC LMD Technician Zones



Oklahoma Conservation Commission
September 9, 2025



Fighting Fire with Fire Trainings



Legend

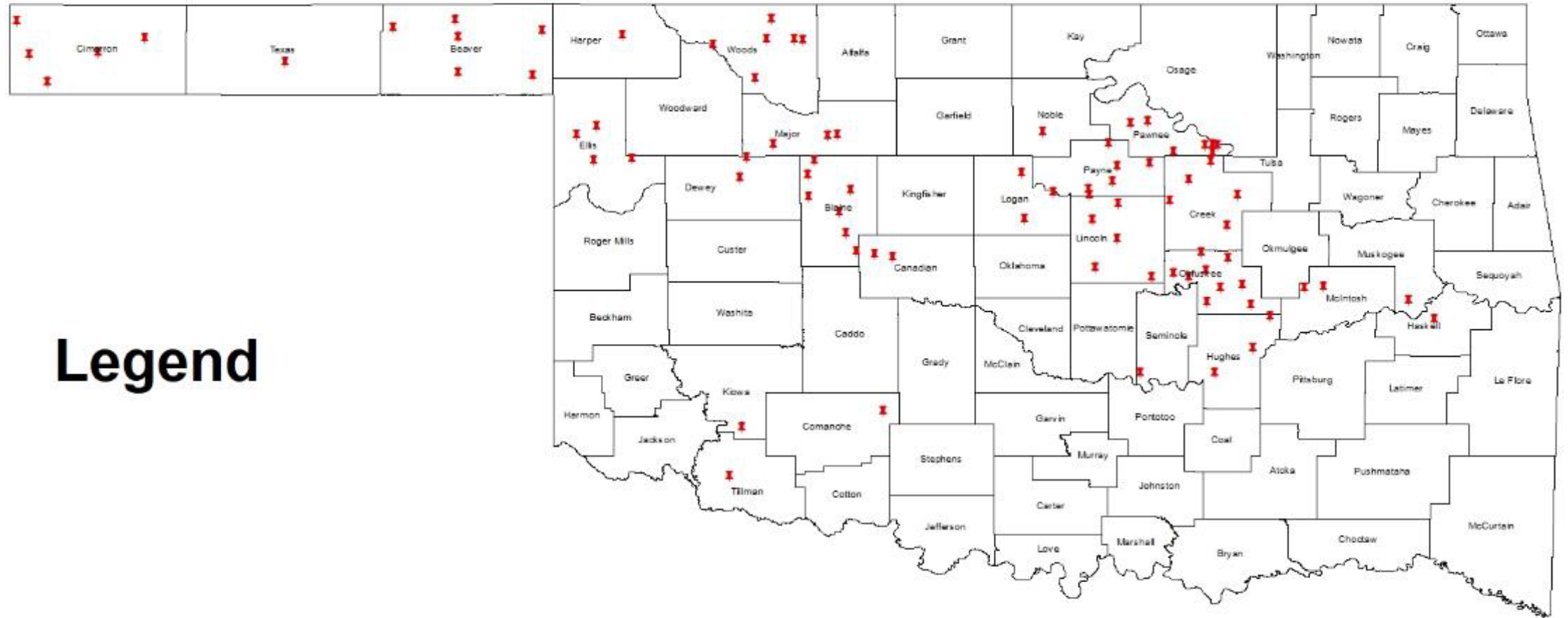
Training ★ Fighting Fire with Fire

0 20 40 80 120 Miles

Oklahoma Conservation Commission
November 18, 2025



Fighting Fire With Fire Grants



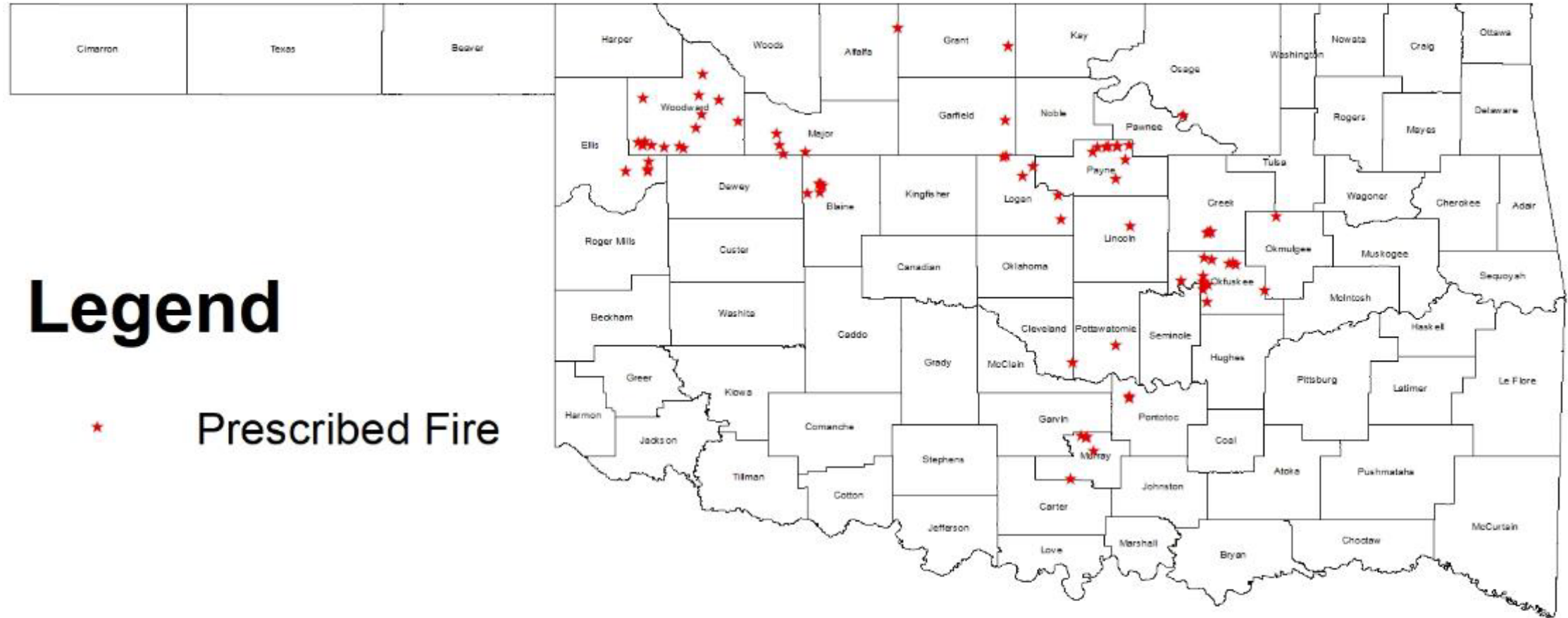
Legend

0 20 40 80 120 Miles

Oklahoma Conservation Commission
November 18, 2025



Prescribed Fire Financial Assistance



Legend



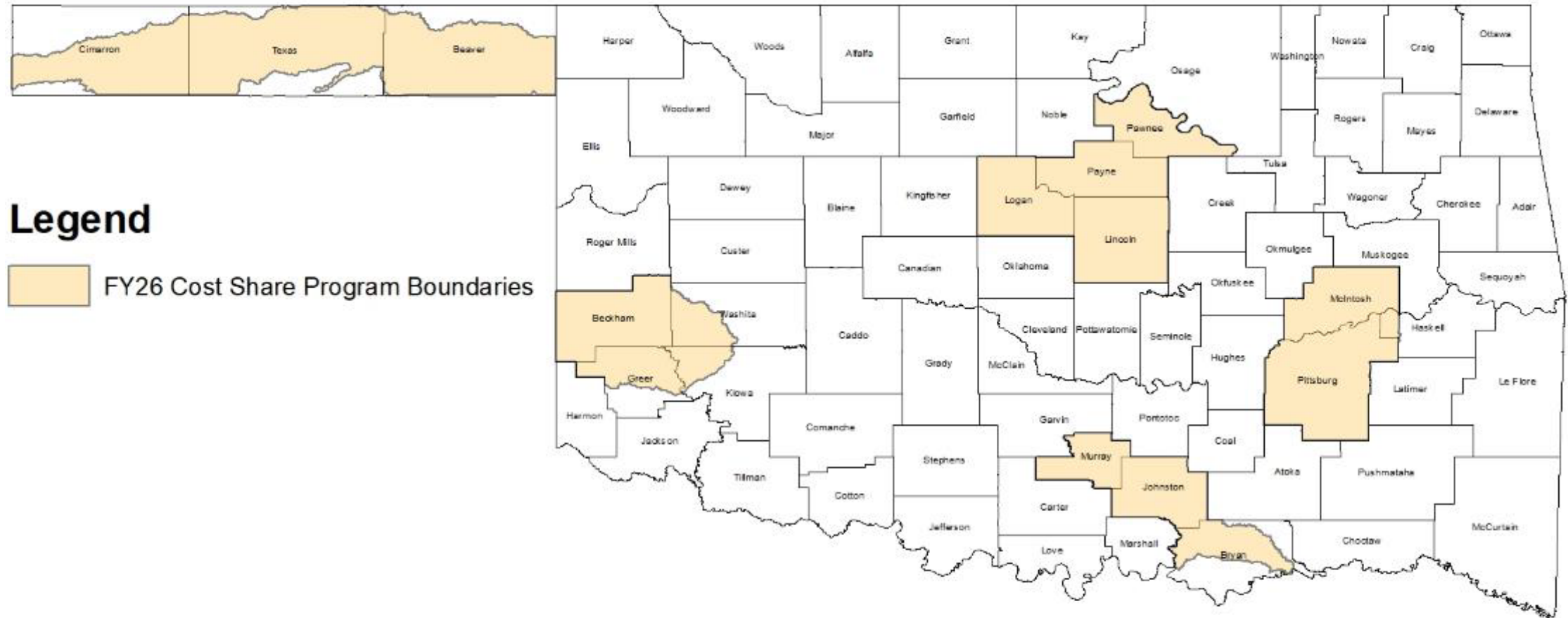
Prescribed Fire



Oklahoma Conservation Commission
September 9, 2025



Invasive Woody Species Program FY26



Legend

 FY26 Cost Share Program Boundaries

0 25 50 100 150 Miles

Oklahoma Conservation Commission
September 9, 2025



Losing Productive Rangelands in Oklahoma To Woody Encroachment



Statewide Rangeland
Production in 2019

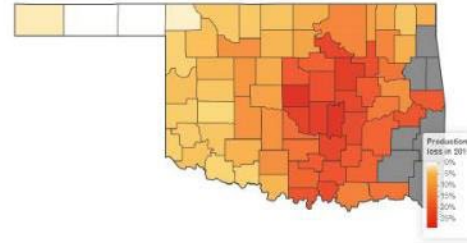
61.4 billion lbs



Grassland converted to
woodland on rangelands
since 1990

2,221,918 ac

Rangeland Production Losses
Oklahoma



Loss of Productivity on OK Rangelands

Loss in 2019

8.9 billion lbs

(13% of total)

Loss 1990-2019

153 billion lbs

forage lost is equal to...

7.5 million



Round
Bales
(1,200 lbs)



128 million

forage lost could support...

728,069



Cows
(1,300 lbs/1yr)



12 million

3.2 million



Steers
(700 lbs/6mos)



55 million



OSU EXTENSION
NATURAL RESOURCES

Terry Peach Monitoring Project

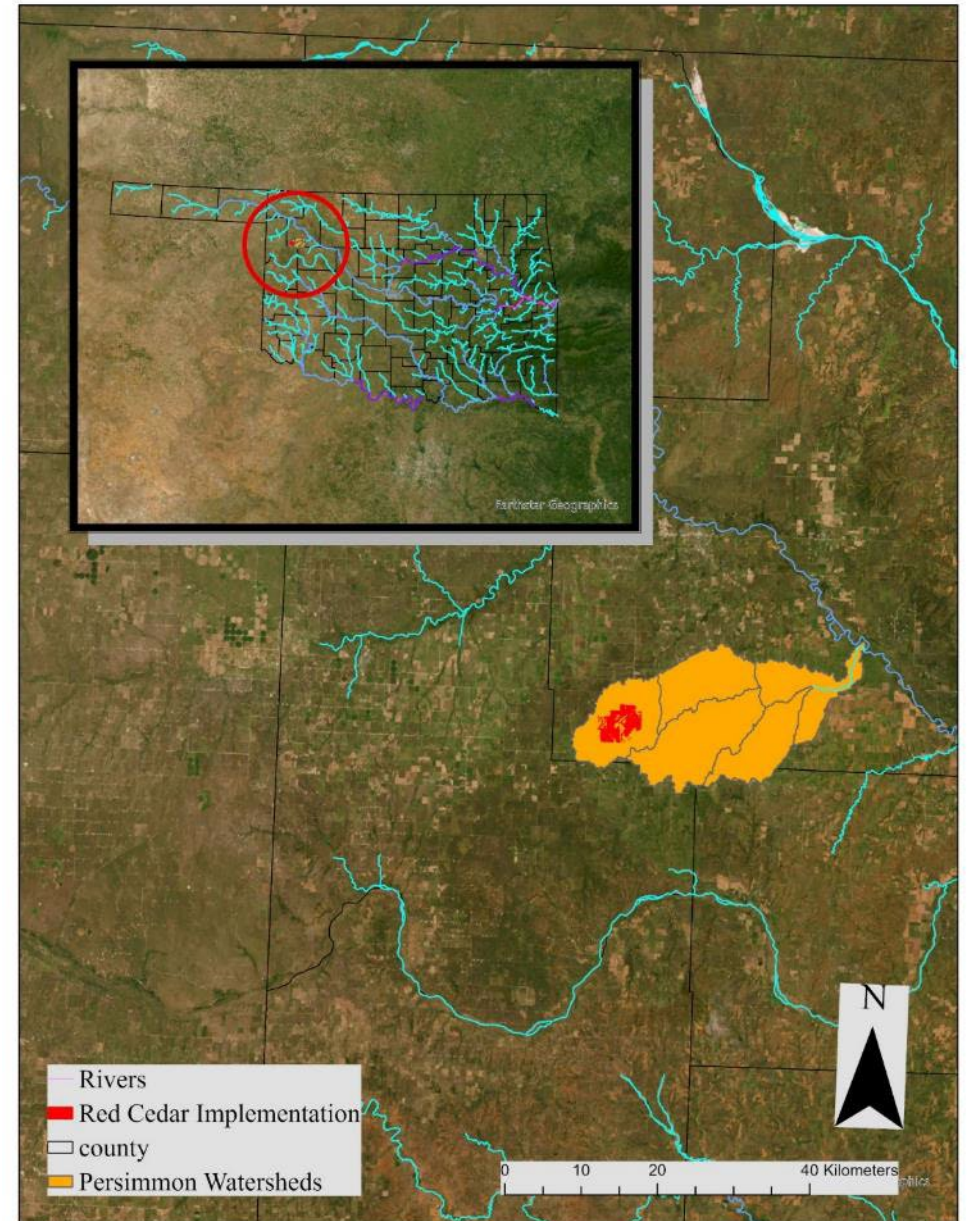
Project Goals:

Assess the hydrologic, vegetation and soil health changes following removal of the invasive woody species Eastern Red Cedar.



Study Area

- ❑ Persimmon Creek Watershed
 - ❑ Tributary of North Canadian River
 - ❑ 110,000 acres
 - ❑ Goal of 1,000 acres of removal in headwaters



Persimmon Creek

Rotating Basin Site Summary



This leaflet provides an overview of the water quality at Persimmon Creek. The data presented were collected between 2022 and 2024.

To evaluate water quality in streams, Oklahoma Conservation Commission (OCC) collects biological (fish and bugs), chemical (nutrients, salts, and turbidity) and physical (habitat) data in streams across Oklahoma. Each of these measurements are compared to scores from nearby high-quality streams. Additionally, a relative risk assessment (RRA) was conducted to determine the likely stressors to biota in the area.



Water Chemistry	Fish	Bugs	Habitat	Final	Grade
1	1	0.84	0.94	0.95	A

Each measurement score ranges from 0 (worst) to 1 (best). The water chemistry score is an average of nutrients, salts, pH, dissolved oxygen (DO), and turbidity/TSS (total suspended solids) measurements. The stream's final grade is an average of all measurements.

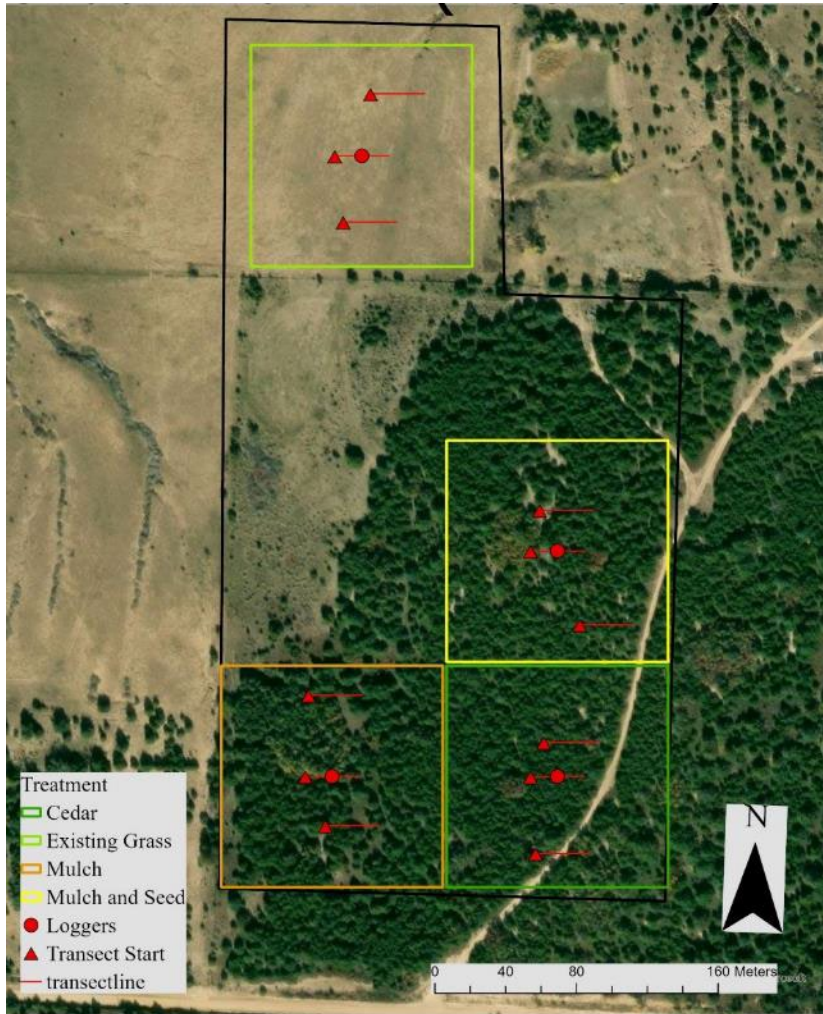
A stream's score is affected by activities in the upstream area that drains to the creek or watershed. OCC interprets monitoring data in order to identify **voluntary** best-management practice (BMP) recommendations for the watershed that can help improve water quality:



- Persimmon Creek is on the 303(d) list of impaired waterbodies for the E. coli metric. In the recent assessment, all water-quality metrics were in good condition.
- The site is not on the 303(d) list for any biotic metrics. According to the OCC biocriteria, the bug and fish assemblages were also in good condition.
- The disagreement between the 303(d) listing and the OCC analysis is likely due to either a discrepancy in evaluation methods, or the recency of the data compared to when the 303(d) list was last updated.
- This stream did not suffer from any of the potential stressors identified in the RRA, indicating that there is currently not a significant amount of nonpoint source pollution reaching the stream.
- Maintaining vegetative cover in the watershed and the riparian zone will promote groundwater infiltration and reduce nonpoint source contaminants, helping to keep the stream in good condition.

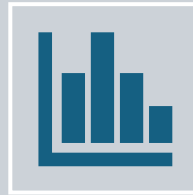
Study Design

- ☐ Randomized block design
- ☐ 4 blocks with 4 treatments
 - ☐ Cedar Control
 - ☐ Existing Grass
 - ☐ Cedar removal- mulch
 - ☐ Cedar removal- mulch and seed





Study Design: Vegetation & Soil Health



Pre - and Post Monitoring



Vegetation

Composition
Diversity
Cover



Soil Health

Infiltration
Soil Chemistry
Worm activity

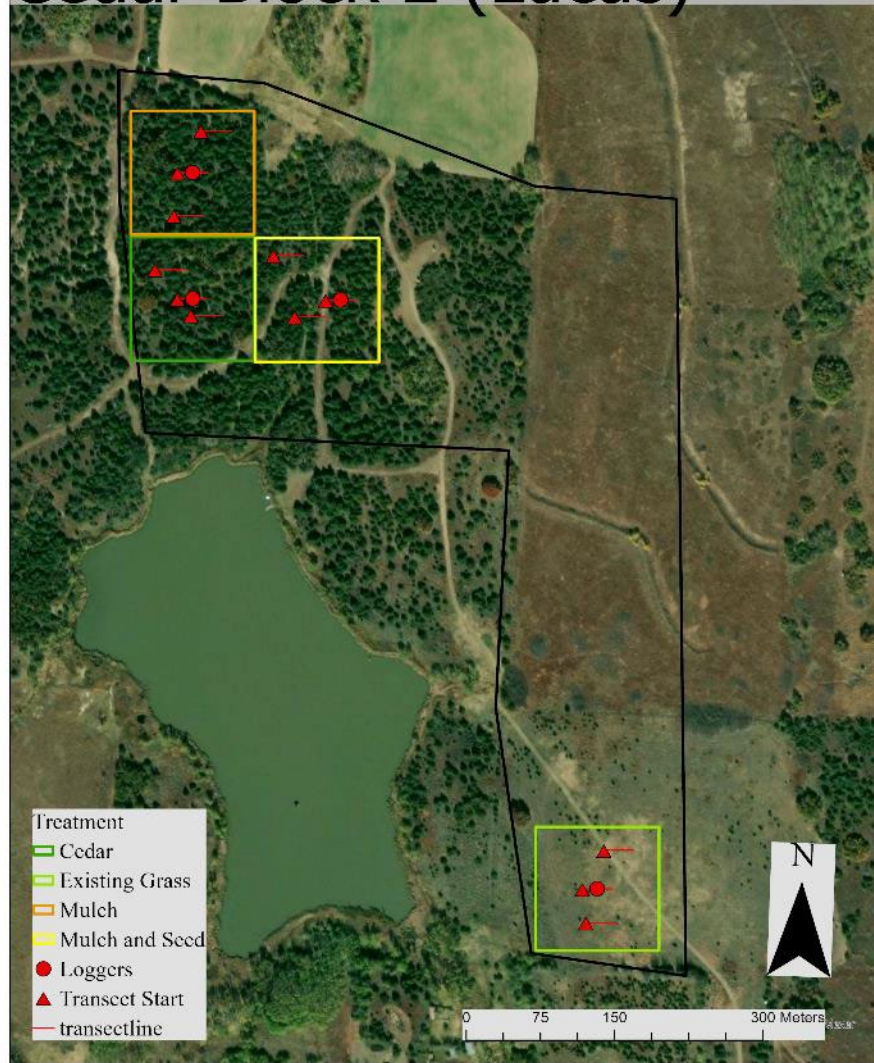
Study Design: Hydrology

- ❑ Continuous soil moisture monitoring
 - ❑ 60 cm depth in each treatment
 - ❑ Variability in cedar plots
- ❑ Weather Station
 - ❑ Precipitation
 - ❑ Evapotranspiration
- ❑ Modeled improvements in groundwater recharge and discharge

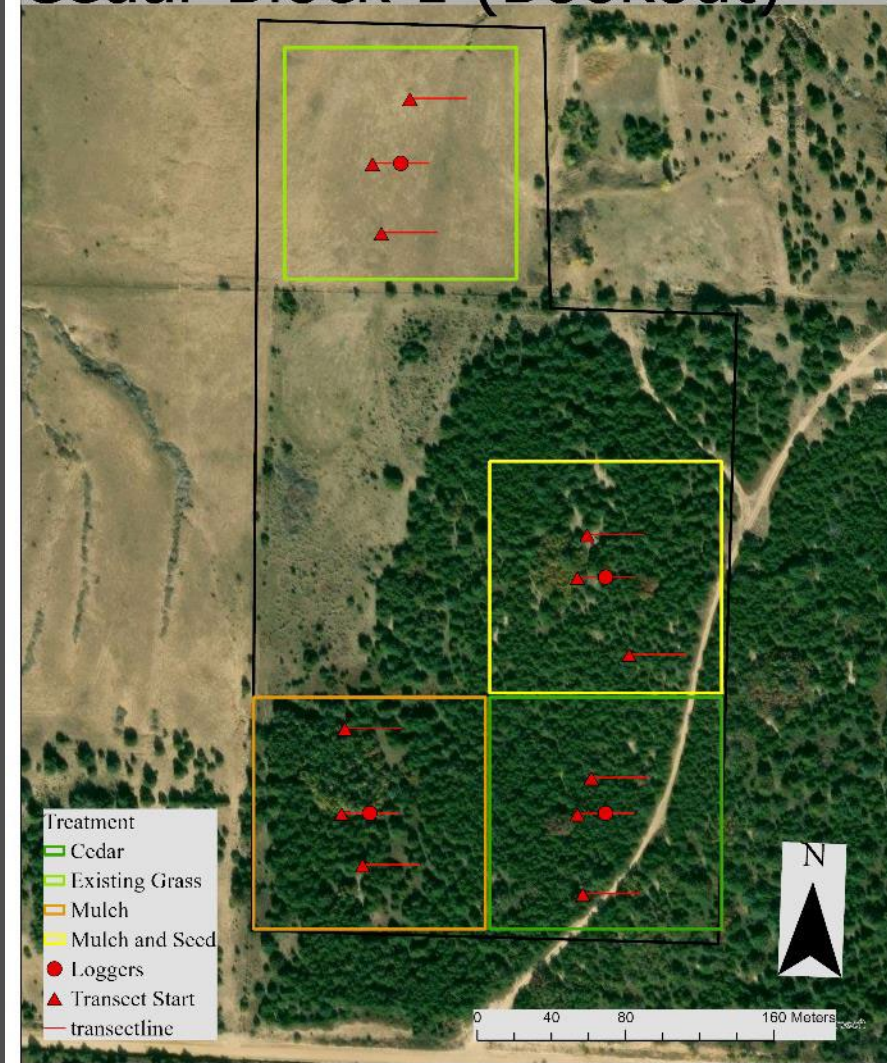
$$\textit{Precipitation} - ET - \Delta S = G + Q$$



Cedar Block 2 (Lucas)



Cedar Block 1 (Bookout)









Preliminary Data (May – Sep 2025)

Depth	Cedar	Inter canopy	Grass	Mulch	Seed
0-15	9.1%	13.7%	15.9%	11.7%	16.2%
15-30	9.3%	13.5%	22.1%	13.6%	19.1%
30-45	11.1%	10.7%	22.2%	14.9%	20.6%
45-60	12.1%	12.1%	22.3%	19.3%	22.4%
Gallons / Acre of Water more than Cedar			51,488	14,560	44,832

- ☐ Caveats
- ☐ Cause
- ☐ Timeframe
- ☐ Vegetation
- ☐ Regionality
- ☐ Mulch
- ☐ Q and G

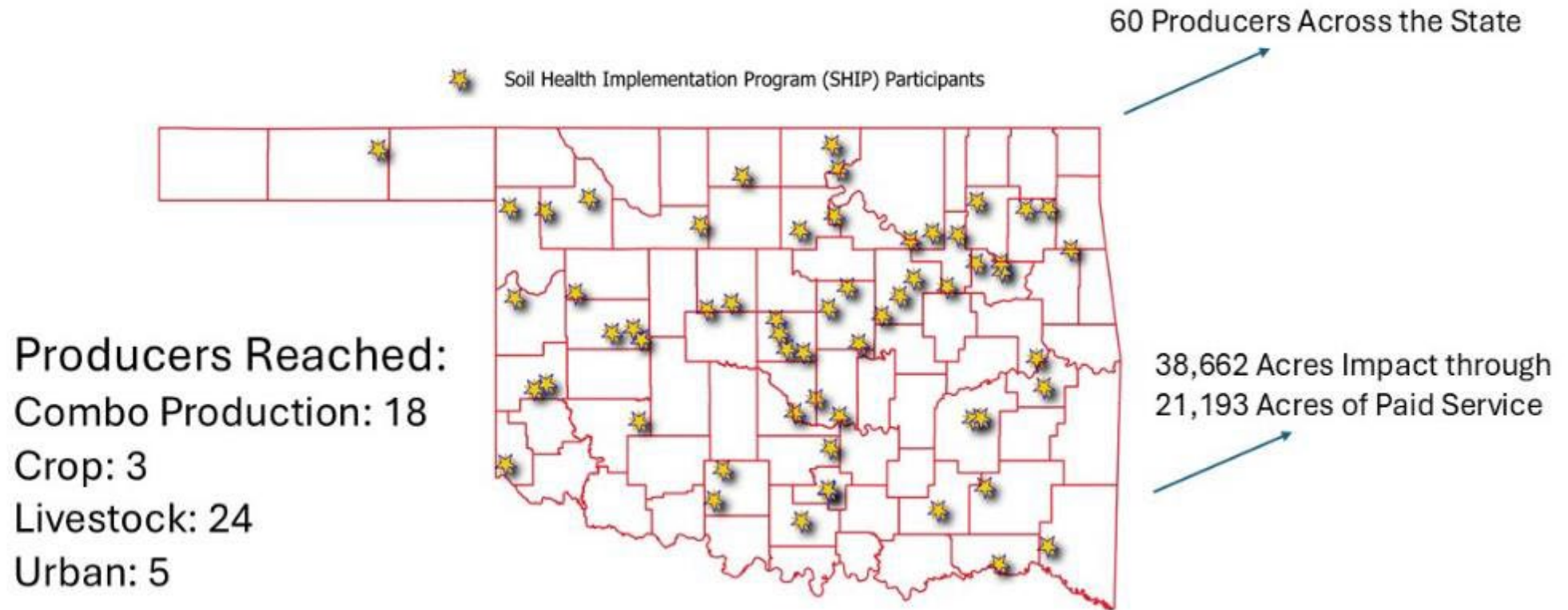
Moving Forward

- ❑ Continuous soil and weather monitoring
- ❑ Yearly vegetation and soil health monitoring
- ❑ Monitor Persimmon Creek for flow, chemistry and biology
- ❑ Track changes in vegetation, soil health and hydrology

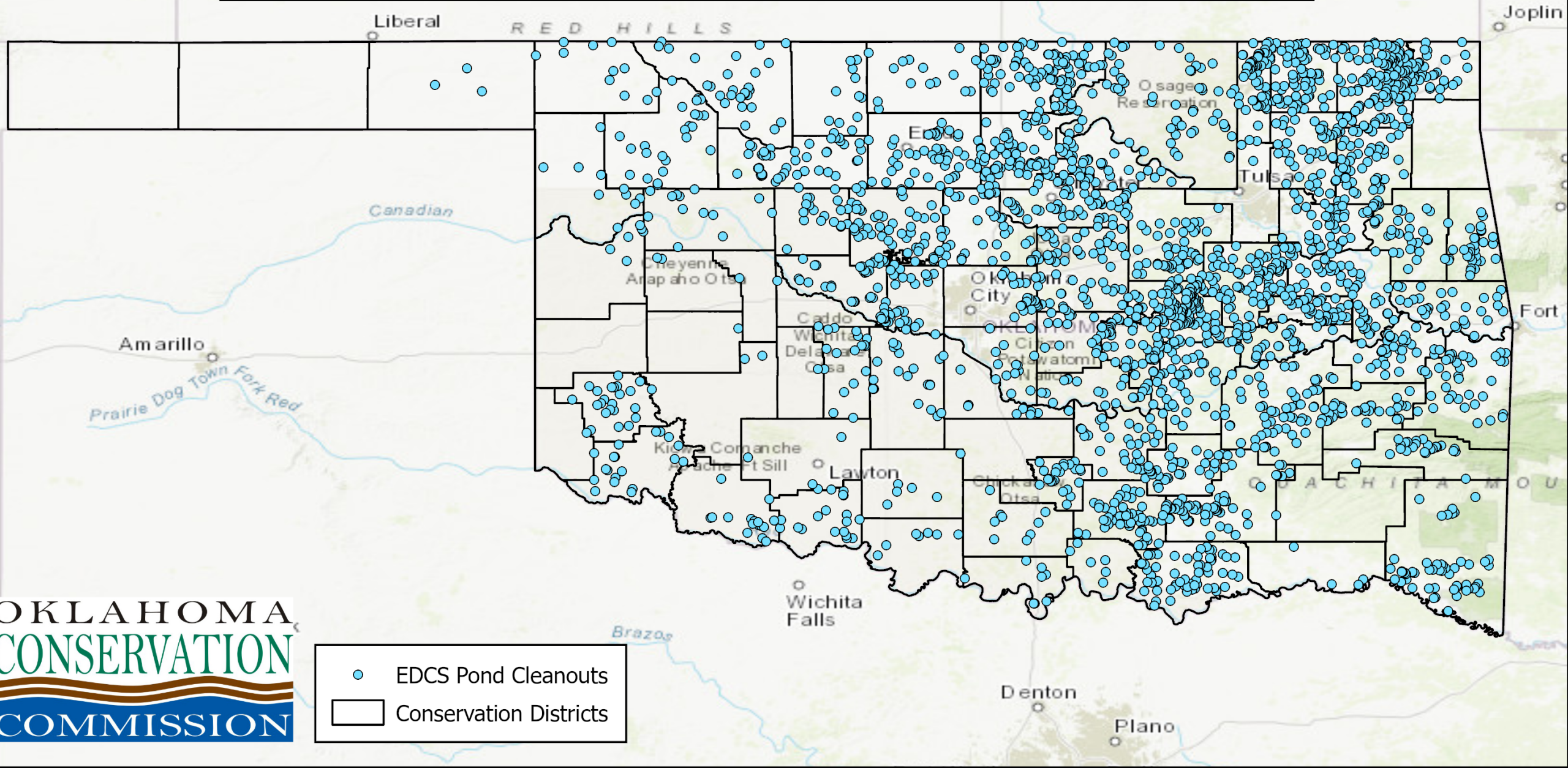


Healthy Soil-Clean Water = Healthy Food-Healthy People

Soil Health Implementation Program (SHIP)



2,800 completed EDCS pond cleanouts from 2022-2024



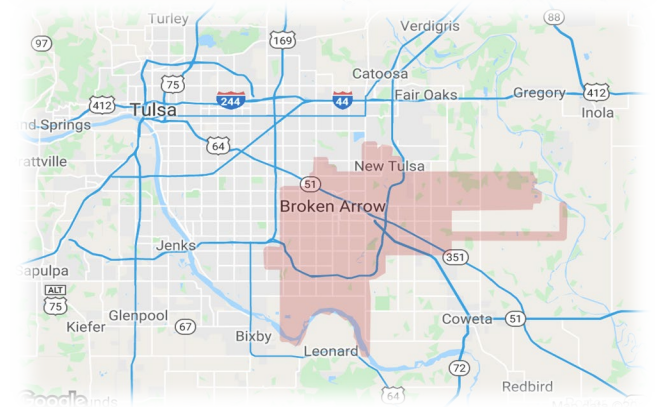
19,515,027.90 Cubic yards of pond sediment was removed in the drought program from 2022- 2025. This allows more room in ponds for water.
3,942,035,685 gallons of new water storage was created.



A herd of 120 cattle at 1200-pounds each, needs about 1,920 gallons of water a day. Through this program **2.1 millions days** of water was developed. Saving ranchers from being forced to sell **\$2,700,032,000 in assets** (cows).



3,942,035,685 gallons of water is roughly the size of Lake Elmer Thomas in Comanche County. This would be enough to supply the town of Broken Arrow, OK for one year.



2022-2025 Drought Program