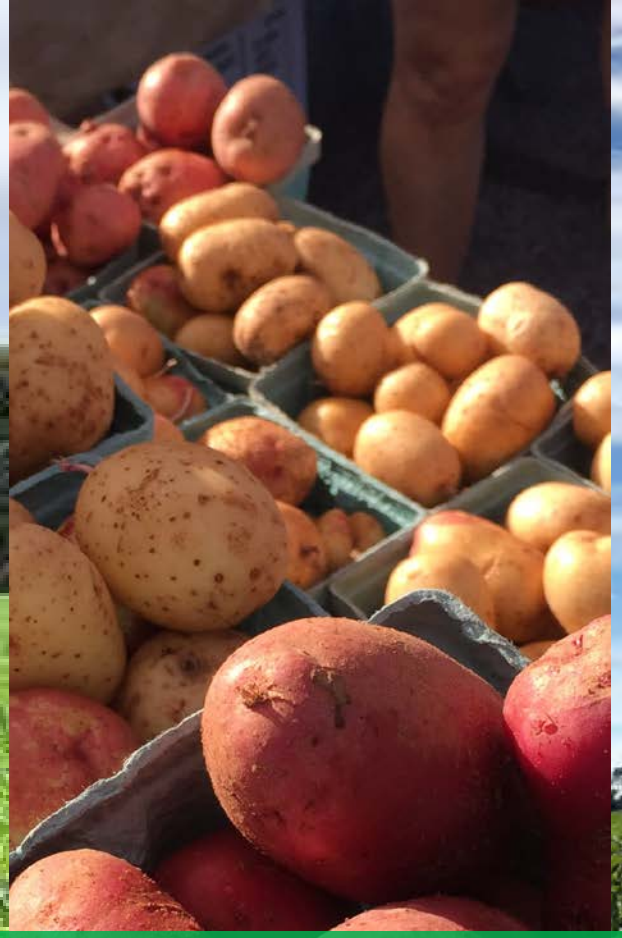


Organic Transition Trainer Program

Organic Association of Kentucky

Brooke Gentile | www.oak-ky.org

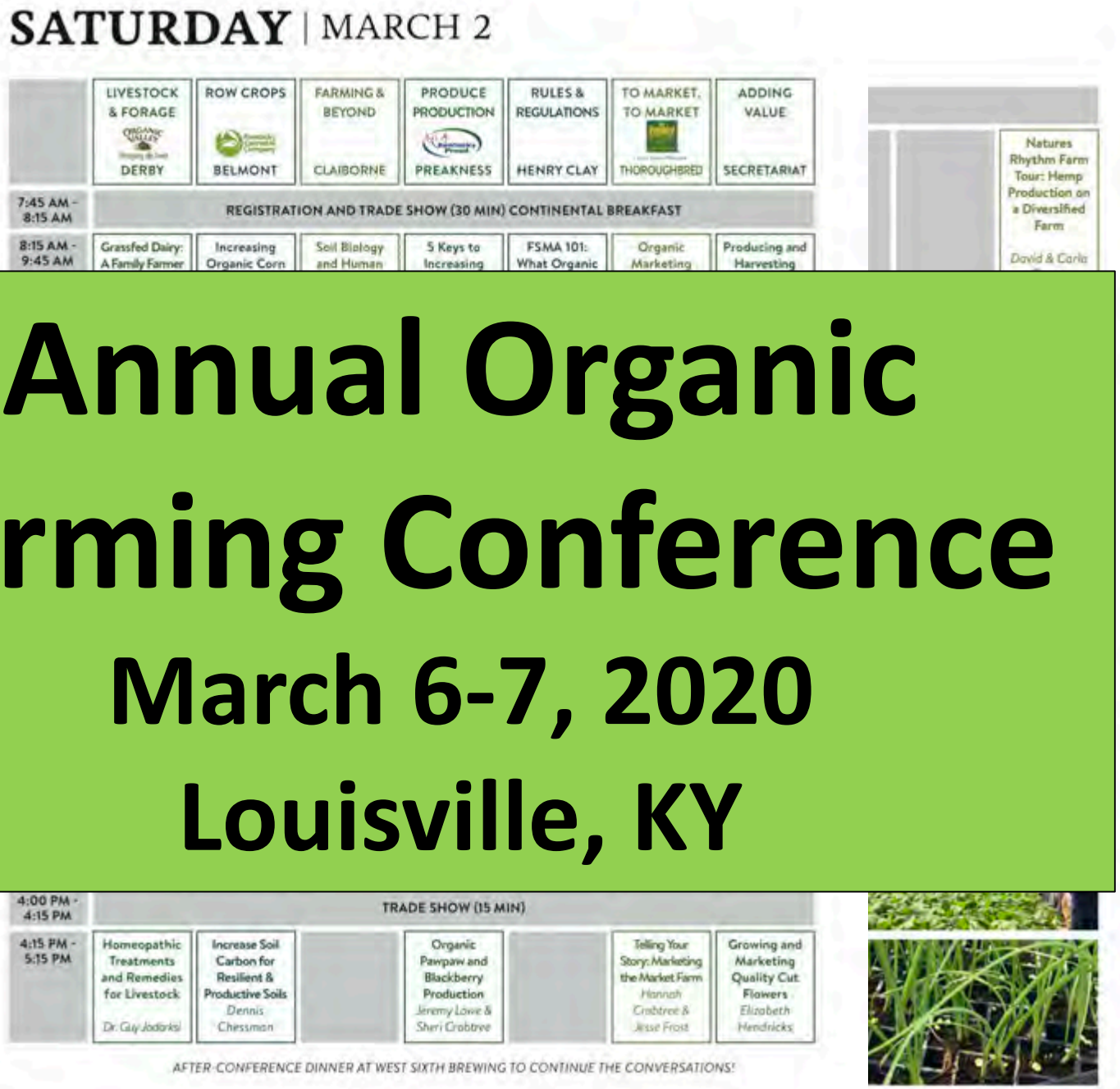
Mission:

The Organic Association of Kentucky (OAK) is a non-profit, membership-based organization dedicated to improving the health of the environment & the citizens of Kentucky.

OAK provides resources and educational opportunities for Kentucky farmers and consumers who are interested in driving change for a more regenerative and organic food system.

2019 FARMER FIELD DAYS

Organic Marketing - March 26th - Center for Crop Diversification
Irrigation Systems - April 12th - UK Horticulture Research Farm
Organic Grassfed & Finished Beef Production - May 2nd - Elmwood Stock Farm
Organic Sheep Production - May 23rd - Rootbound Farm
Organic Row Crops and Large Scale Transition - June 25th - Durham Farms
Introduction to Organic Certification – June 25th - Christian County Extension
Organic No-Till Market Farming - June 27th - Rough Draft Farmstead
Organic Disease and Pest Management - July 25th - Locust Ridge Organics
Organic Hemp Production – September 18th - KSU & Beyond the Bridge Organics
Fertility, Cover Crops, Soil Testing – Sept 26th - UK Horticulture Research Farm
And more to come....



Annual Organic Farming Conference

March 6-7, 2020

Louisville, KY

Organic Transition Trainer Program

What *IS* Organic Certification?

National Organic Program (NOP)

What *IS* Organic Certification in practice? How do I apply?

Organic crops and livestock are grown with NO:

- conventional pesticides
- herbicides
- synthetic fertilizers
- sewage sludge
- genetically modified organisms
- antibiotics
- growth hormones

YES, BUT WHAT *IS* "ORGANIC"?

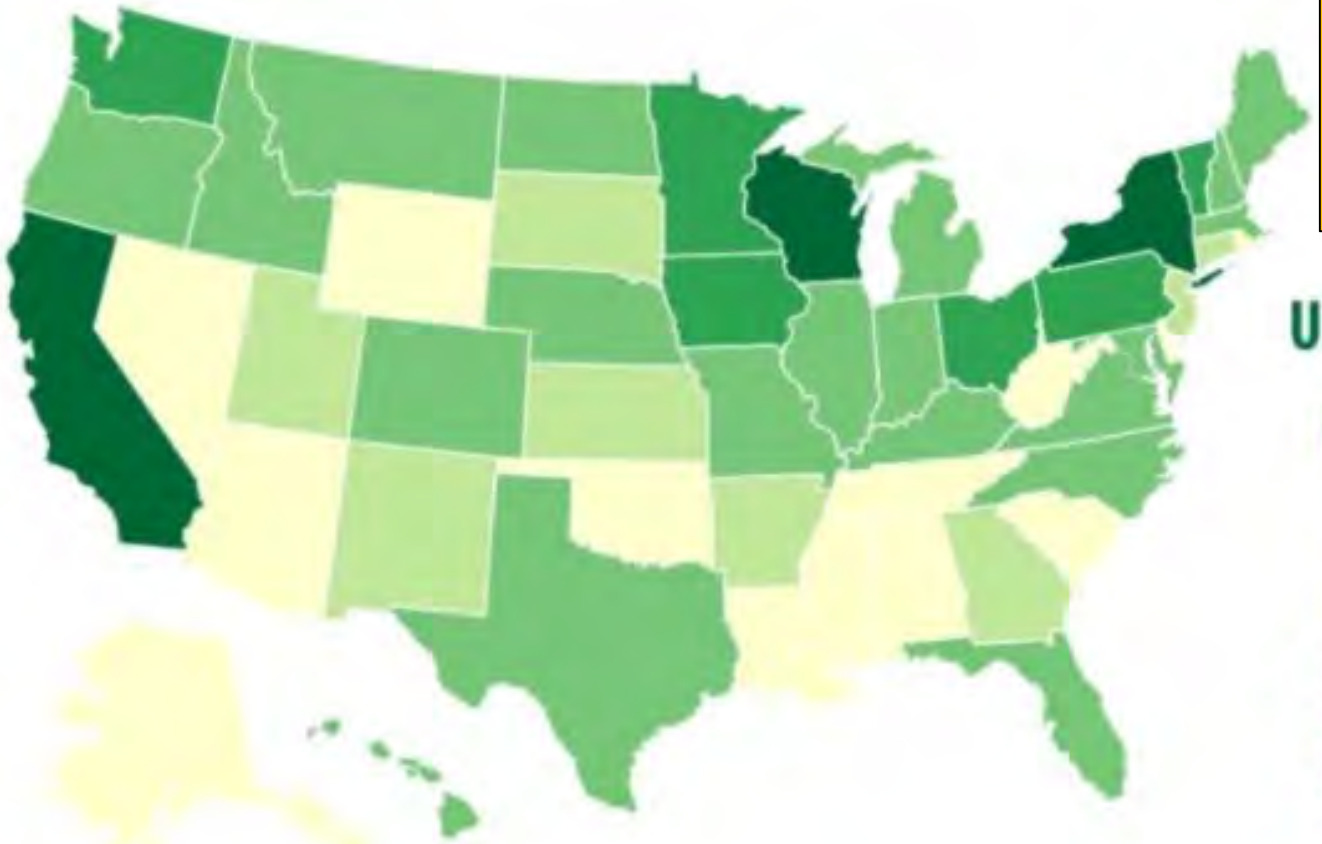
"Organic agriculture **is** an ecological production management system that promotes and enhances biodiversity, biological cycles and soil biological activity. It is based on minimal use of off-farm inputs and on management practices that restore, maintain and enhance ecological harmony...It is a production system that is managed to respond to site specific conditions by integrating cultural, biological and mechanical practices that foster the cycling of resources and promote ecological balance and conserve biodiversity… **The primary goal of organic agriculture is to optimize the health and productivity of interdependent communities of soil life, plants, animals and people."**

The Need: 2016

gaps in critical knowledge
NOP regulations
organic production
assistance with application
market trends

Number of Certified Organic Farms by State, 2016

California continues to lead in certified farms with more than 2,700, up 3% from 2015



KY 2016 = 105 Certified Organic Farm Operations

U.S. = 14,217

up 11%

- < 50
- 50–99
- 100–499
- 500–999
- 1,000 +

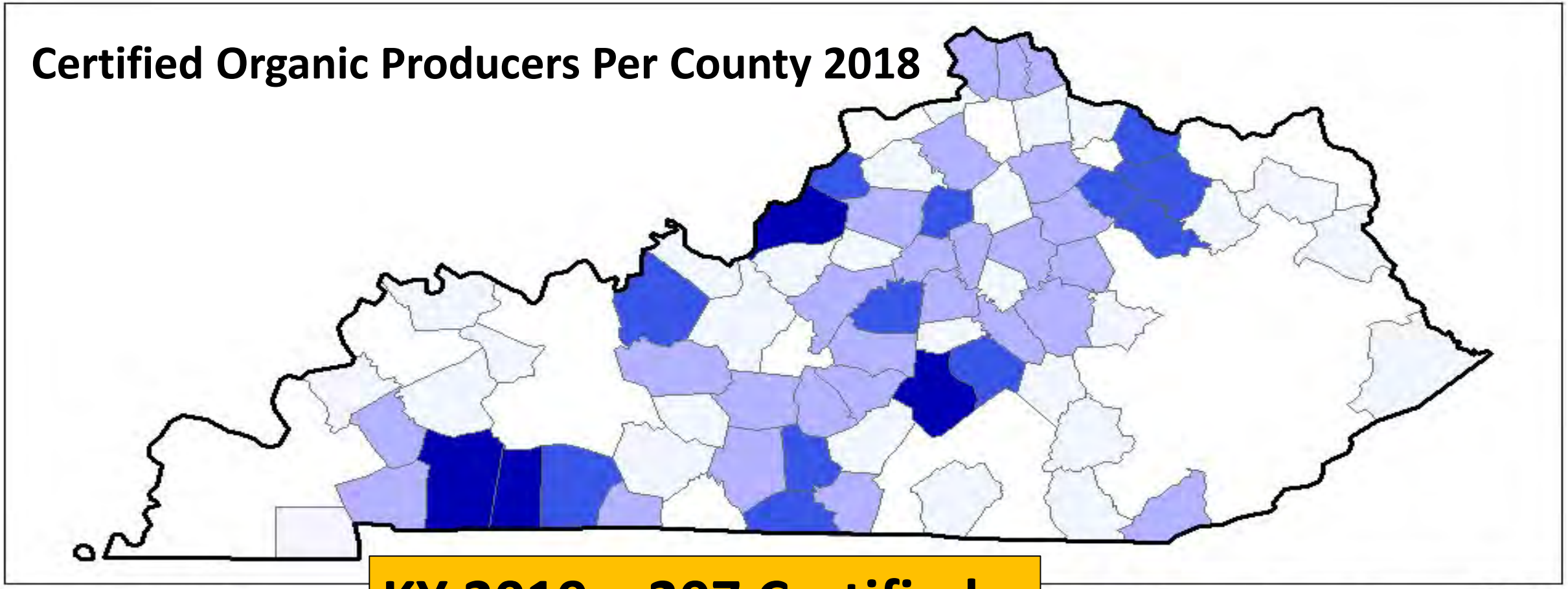
Source: USDA NASS 2016 Certified Organic Survey

USDA

United States Department of Agriculture
National Agricultural Statistics Service

Find out more at **www.nass.usda.gov**

Certified Organic Producers Per County 2018



KY 2019 = 207 Certified Organic Farm Operations

Producers (195)

Producers Per County

- 1 (28)
- 2 - 3 (26)
- 4 - 10 (12)
- 11 - 22 (4)

Miles

0 20 40 80 120 160

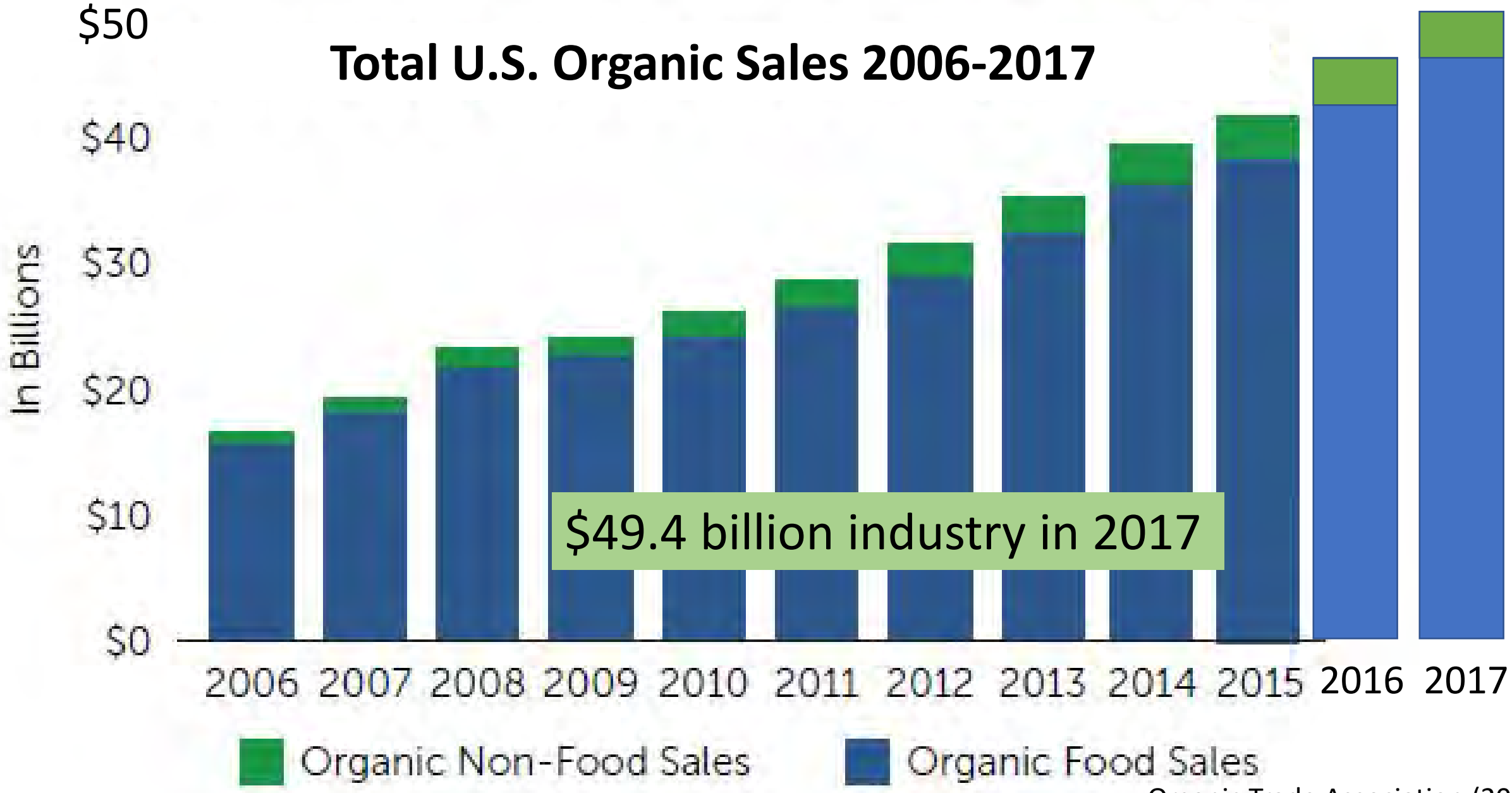
Source: USDA Organic Integrity Database, 2018

USDA Organic Integrity Database – search here: https://organic.ams.usda.gov/integrity/Search.aspx

Certified Organic Operations in KY

May 2019 KY has <u>244 organic operations</u>:

- **39 are processors or handlers**
- **207 crop (125 hay, 75 row crop, 54 vegetables)**
- **86 livestock (43 dairy, 39 poultry, 2 beef, 7 hogs, 2 lamb)**
- **2 wild crop**



Organic Trade Association (2016)

Total Organic Product Sales for Kentucky Farms

OAK TT Goals:
up to 25 farms
transitioning in
2 years

How did
we do it?

Train the Trainers

OAK Transition Trainers

Brooke Gentile

Tony Silvernail

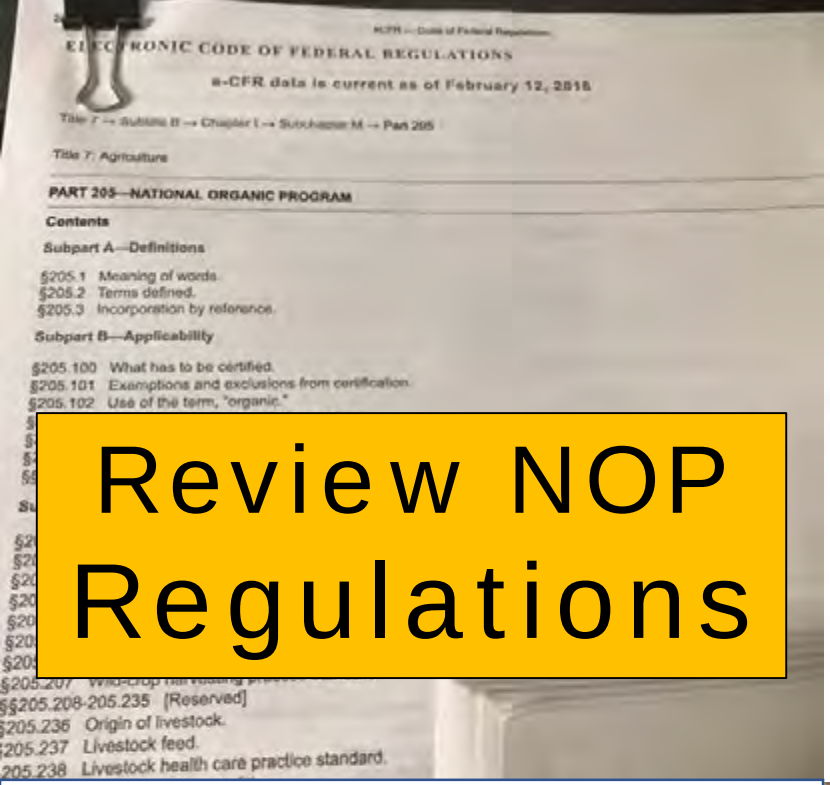
Neil Wilson

Andrew Oles

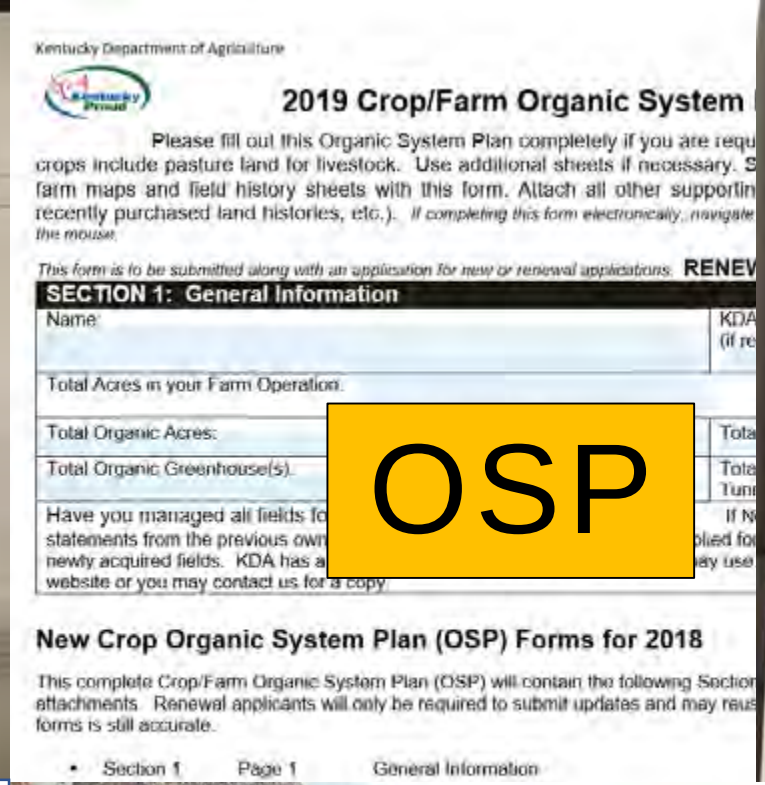
Alexis Sheffield
Mark Walden
Leigh Whittinghill
Shawn Lucas

Mike Lewis
Josh Knight
Wes Krug
Chris Smigell

Jan Knappage
Kevin Gurtowski
Corina Common
Delia Scott



Review NOP Regulations



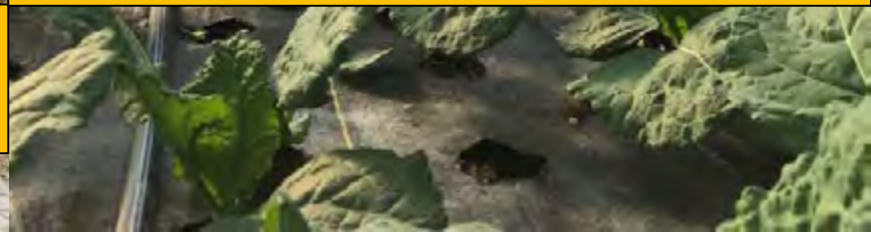
OSP

Farm Walk

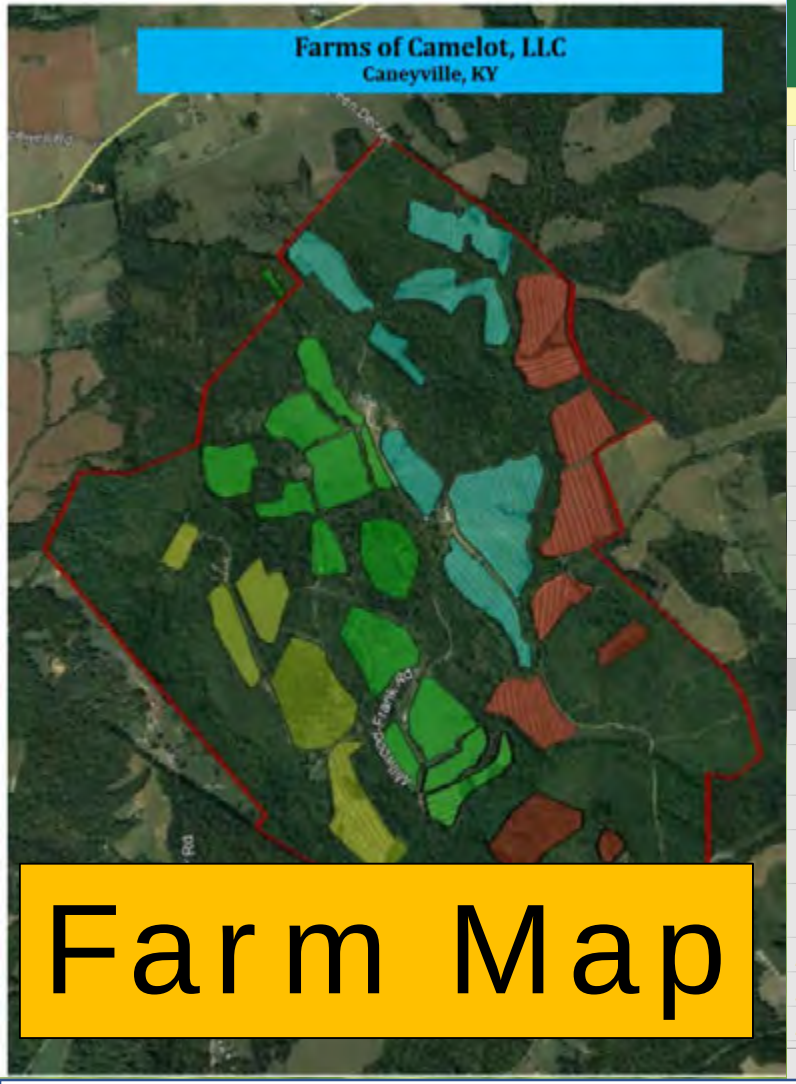
KDA, OneCert, EcoCert, OEFFA, QAI, Oregon Tilth, CCOF

Certifier

Relationships



Production



Farm Map

Template Individual Field Activity Log - Protected View

PROTECTED VIEW Be careful—files from the Internet can contain viruses. Unless you need to edit, it's safer to stay in Protected View. Enable Editing

	A	B	C	D	E	F
1	Five Year Individual Field Activity Log- Field or Crop Name			Acres or Row Feet		
2	Crop Year	Year:	Year:	Year:	Year:	Year:
3	Cover crop type-spring-planting date					
4	Cover crop termination date and method					
5	Basic tillage- method and date					
6	Soil amendments					
7	Soil amendment application date and rate					
8	Manure source					
9	Date and rate of manure application					
10	Crop planted					
11	Planting date					
12	Seed variety (s)					
13	Seeding rate					
14	Crop monitoring-problem weeds, pests, crop vigor-dates					
15	Pest management input (s)					
16	Pest management input- date (s) and rate (s) of application					
17	Disease management input (s)					
18	Disease management input- date (s) and rate (s) of application					
19	Weed management-post planting- method (s) and date (s)					
20	Harvest date					
21	Estimated yields (bu, pds, tons etc.)					
22	Storage location					

Sheet1

PROTECTED VIEW Be careful—files from the Internet can contain viruses. Ur

Section 3: Seeds and Seed Sources

Crop	Variety	Source

Recordkeeping

OMRI, WA, PCO, CA

Approved Lists

OMRI LISTED For Organic Use

Resources

Spade and Table

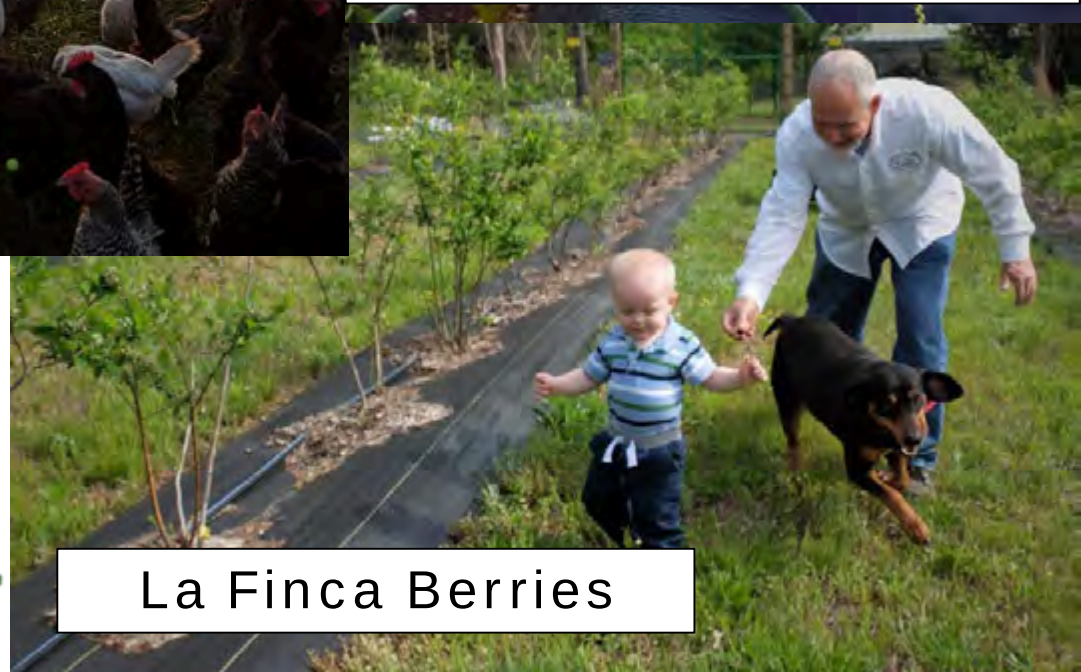
Pink Elephant

Locust Ridge Organics

Butler Farms

PETERSON farms

...Productivity with Stewardship



La Finca Berries

Review OSP
Submit
Follow up
Evaluation
Funding Opportunities
Education – OAK Events
Farmer Network

CERTIFIED OPERATIONS
2017: 5 farms, 262 acres
2018: 8 farms, 167 acres
PENDING CERTIFICATION
2019: 32 farms, 2,896 acres

TRANSITIONING and TBD

2020: 13 farms, 847 acres
2021: 1 farm, 1300 acres
TBD: 10 farms, 521

TOTALS

92 farms engaged with TT

63 additional email/phone support

45 farms certified by end of 2019

24 active transition

5,462 acres impacted

18 TT program presentations

1200+ TT hours

16,000 miles

Motivations to certify:

How did farmers
find OAK?

Lessons Learned:

Farmer Commitment
Travel Time
Length of Engagement
Ongoing Farmer Education
Time to Use Grant $
TT Unique Knowledge & Availability

What comes next?

Work with an Organic Transition Trainer: brooke@oak-ky.org

OAK Field Days
Annual Organic Farming Conference
Sign up for monthly e-news

The Homeplace on Green River: Inventorying and Documenting the Karst Drainage Characteristics

Chuck Taylor, Ben Tobin, Steve Webb

Water Resources Section
Kentucky Geological Survey

University of Kentucky

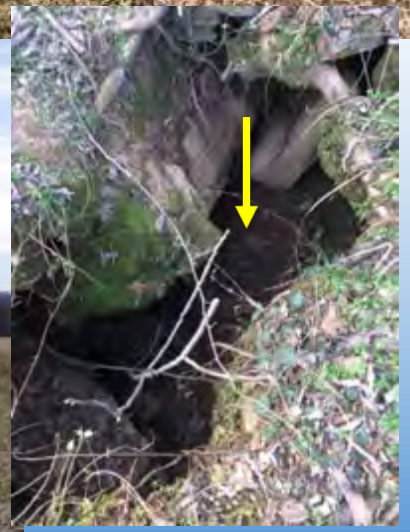
Kentucky USDA State Technical Committee Meeting,
Lexington, KY
June 5, 2019

The Homeplace on Green River, near Campbellsville

- Historic farm and 501c3 organization co-administered by Adair, Green, and Taylor Counties.
- "Kentucky's Outdoor Classroom“--Promotes education about rural American culture and the sustainability of agriculture and natural resources.
- App. 90 acres farmed; typically corn-soybean rotation, varied cover-cropping and no-till practices employed.

Surficial Karst Features Present at The Homeplace:

- ✓ Subsidence Sinkholes (Dolines)
- ✓ Cover-Collapse Sinks
- ✓ Open Throats (Swallets)



Question: Given Presence of Karst, Can Homeplace Farm Be Used for Edge-of-Field Monitoring?

- Conventional EoF Monitoring: Sample and Quantify Concentrations/Loads Leaving Cropped Fields in Surface Runoff.
- How Do These Methods Need to be Changed/Modified to Apply to Farm Sites in Karst Areas?
  - Where Do We Need to Monitor? For example: Where is the "Edge of Field"?
  - How Do We Collect Meaningful Water-Quality Data at Karst Farm Sites Given the Complexity in Drainage of Stormwater Runoff?
  - In Karst, Surface and Groundwater Regimes are Highly Interconnected—Both Surface and Subsurface Components of Storm Runoff Are Important!

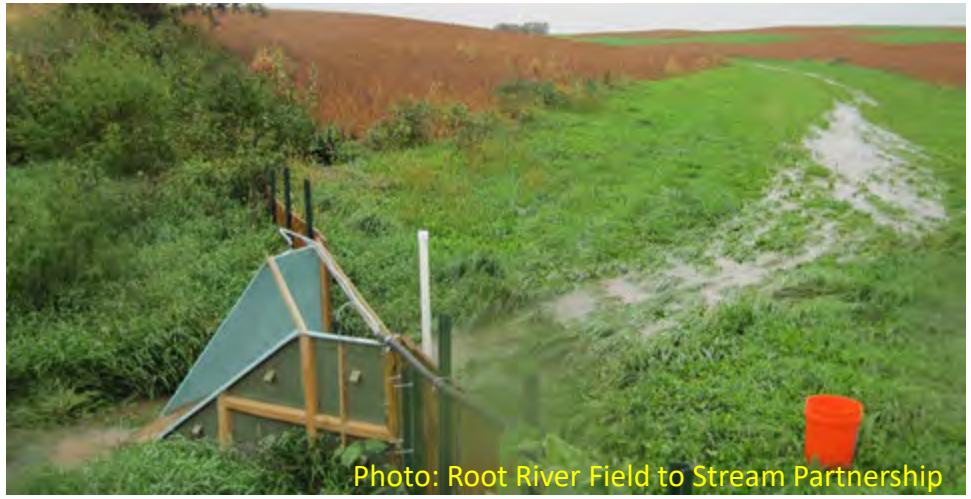
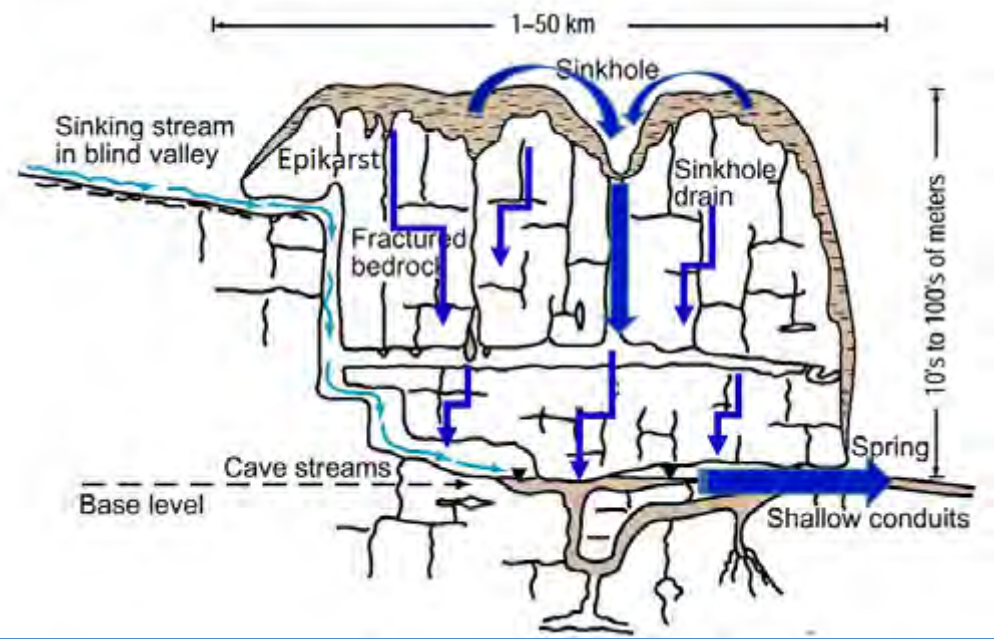


Photo: Root River Field to Stream Partnership

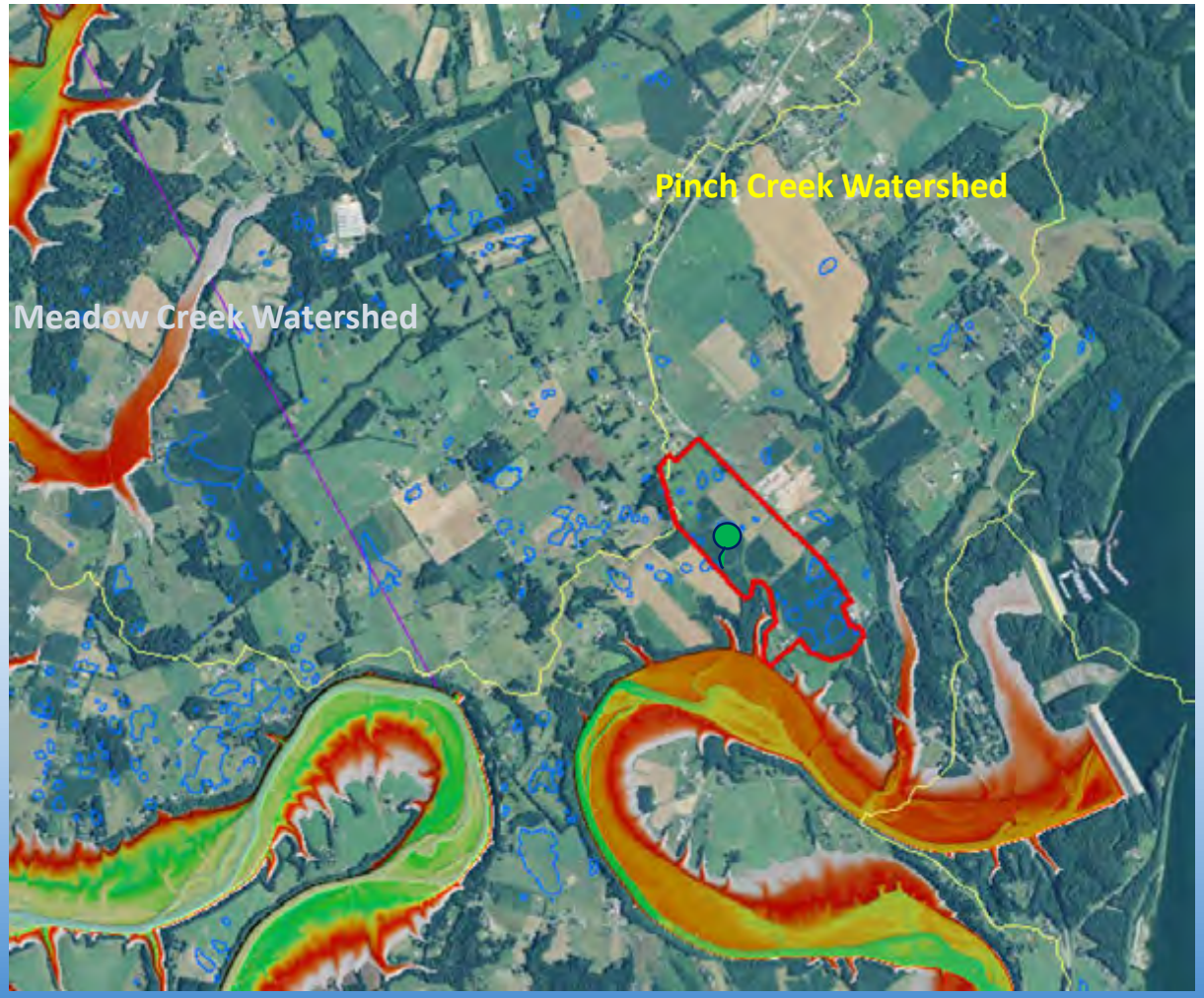


KGS Conducted An Investigation of the Karst At The Homeplace During 2016-2018

Supported by Kentucky CIG Program, through The Homeplace on Green River Inc.

Activities Included:

- Sinkhole Inventory and Hi-Res Digital Mapping
- Surface Geophysical Surveys in main cropped field.
- Spring Discharge Monitoring
  - Flow and Field WQ Parameters
- Qualitative Dye-tracing Tests to delineate subsurface flow paths and delineate karst basin boundaries.
- Quantitative Dye-tracing Tests to investigate potential contaminant transport through parts of the karst system.
- Statistical analysis of spring hydrographs—analysis of spring rainfall-discharge responses.

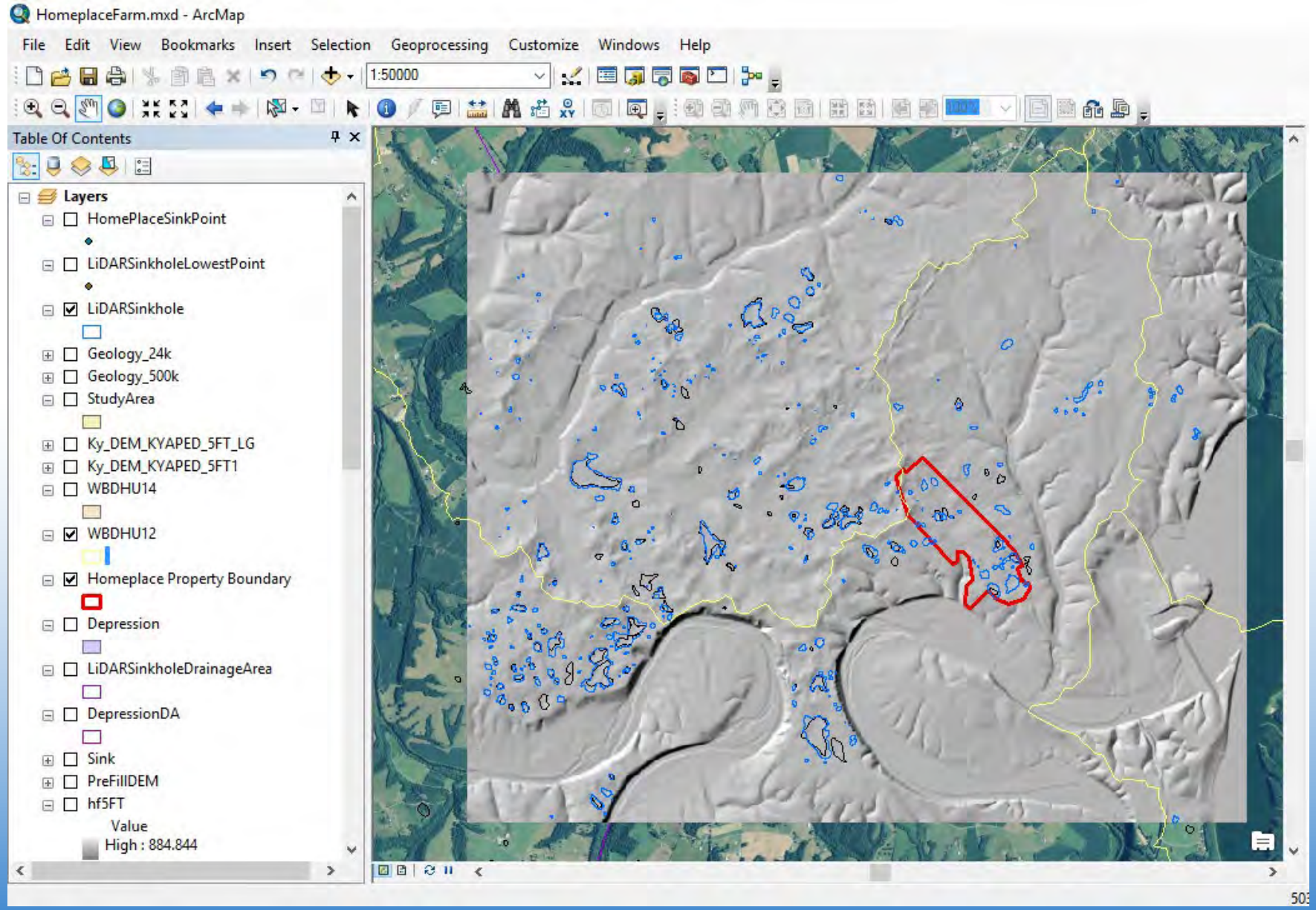


Photos of dye-trace injection and ER survey are examples from other KGS projects and were not conducted at Homeplace Farm

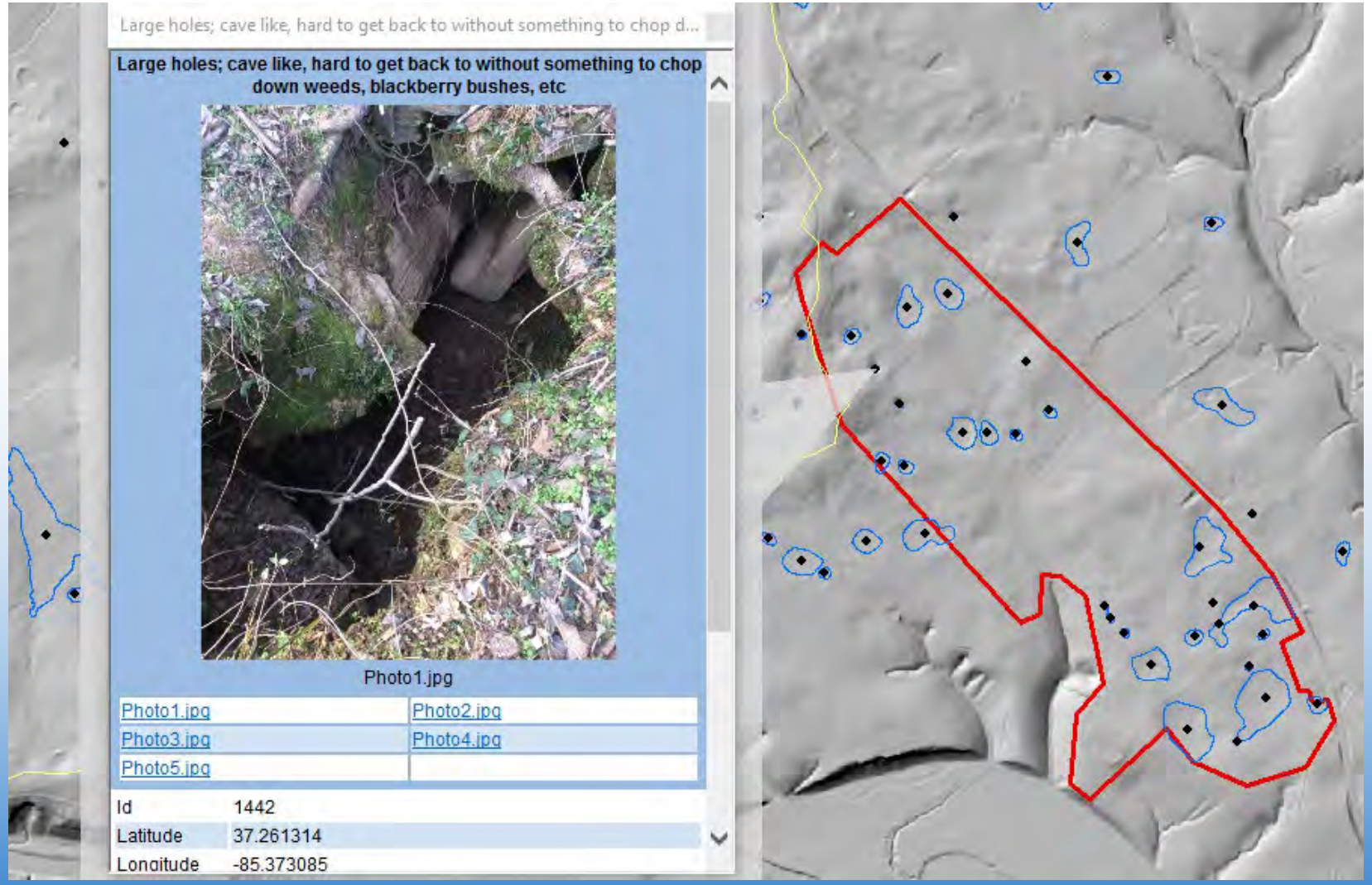
Sinkhole Mapping and Inventory

Number of Sinkholes Mapped Previously by KGS in Study Area Before LiDAR data = 97 (black polygons)

Number of Sinkholes Identified After LiDAR Processing = 321 (blue polygons)



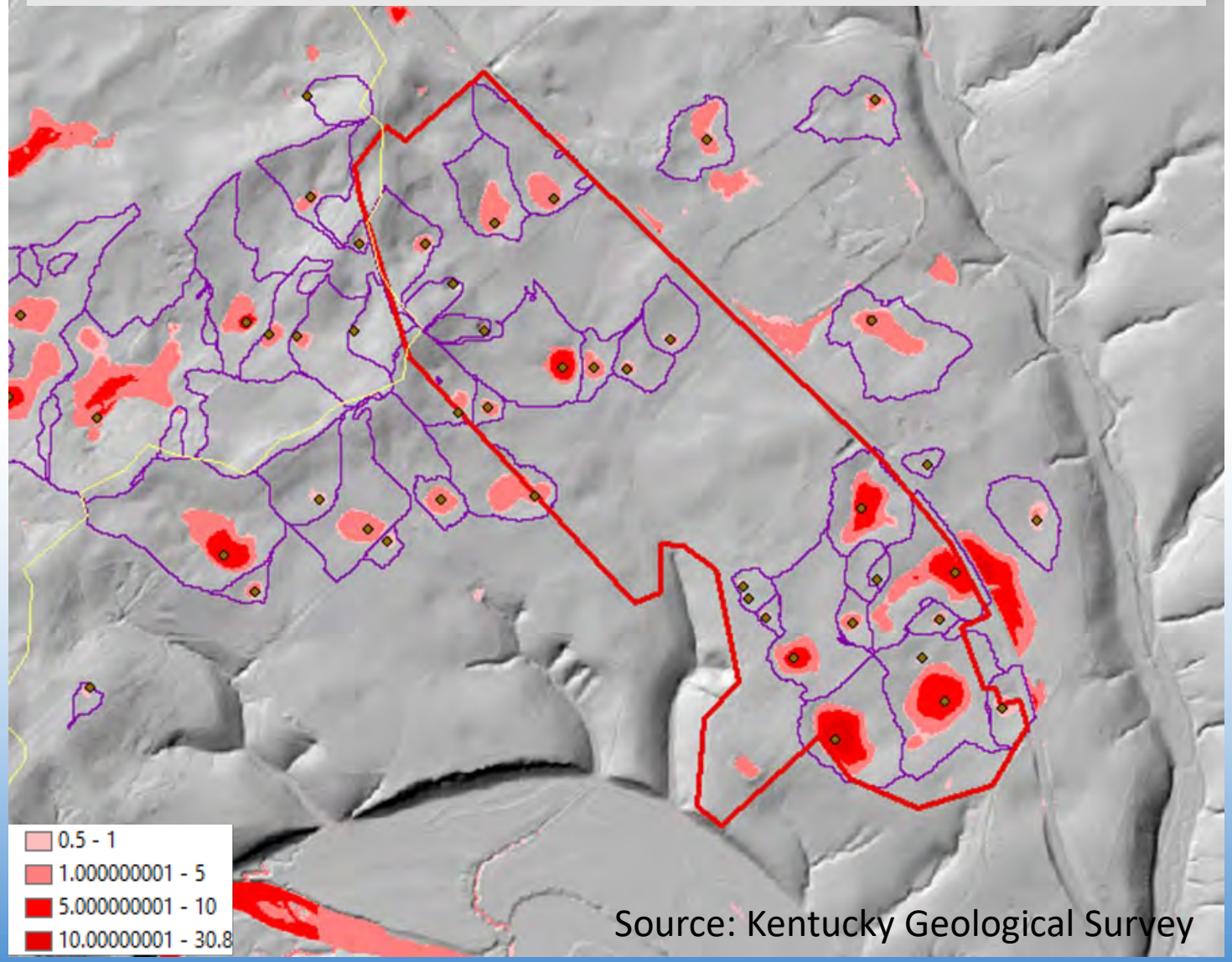
Field Verification of LiDAR-indicated Sinkholes and Digital Mapping of Their Physical Drainage Characteristics



Importance of Sinkhole Mapping/Inventory to EoF Monitoring

- Each sinkhole is an isolated, internally-drained sub-basin.
- The sinkhole bottom (lowest point) is the EoF (swallets important!).
- The sinkhole sub-basins are hydrologically “connected” to a nearby karst spring and surface stream, as determined through dye-tracing tests.
- The sinkhole-to-spring flow path, defines the input-to-output flow path for EoF monitoring and sampling.

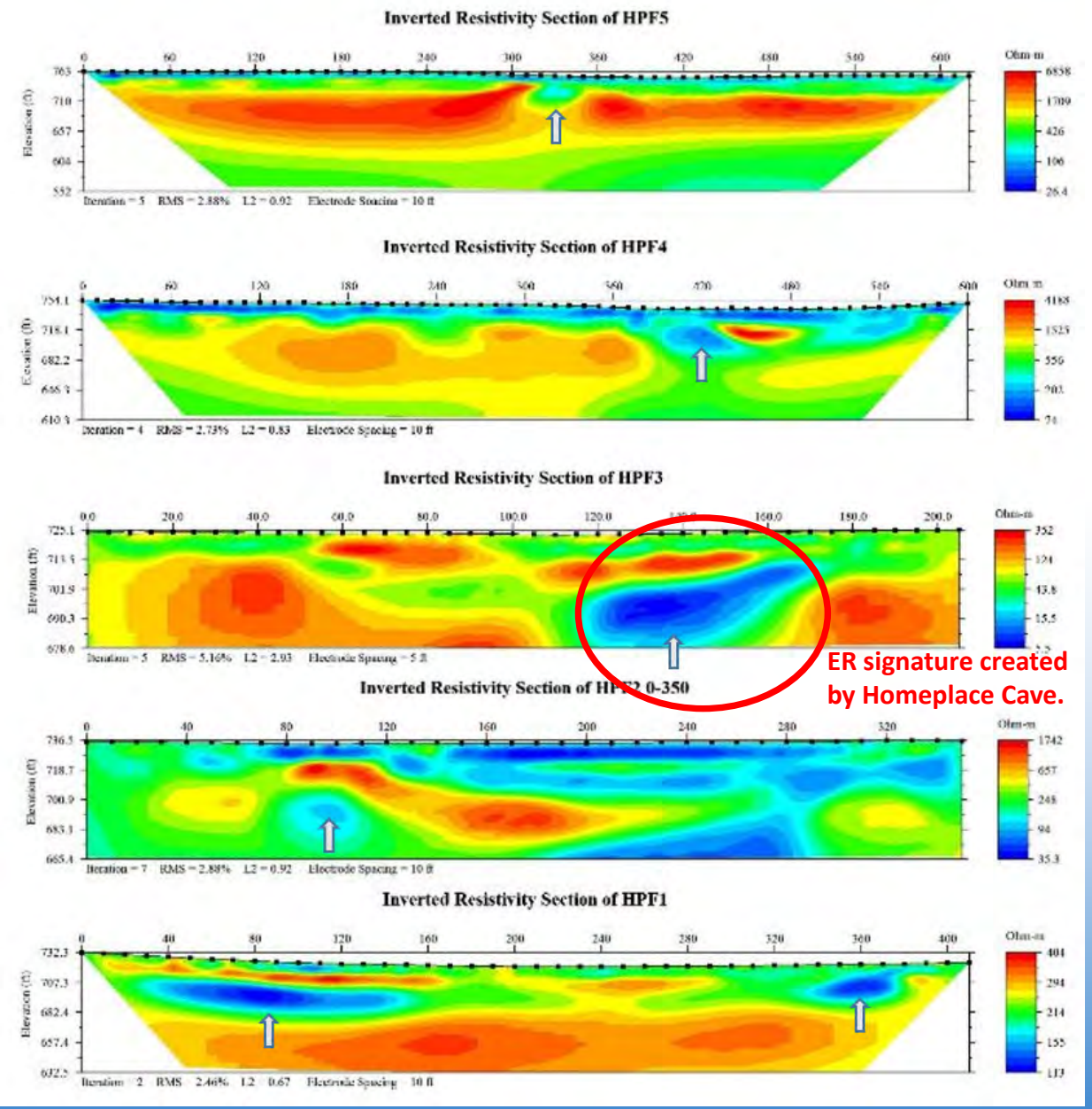
LiDAR-indicated sinkhole depths, boundaries, and possible swallets



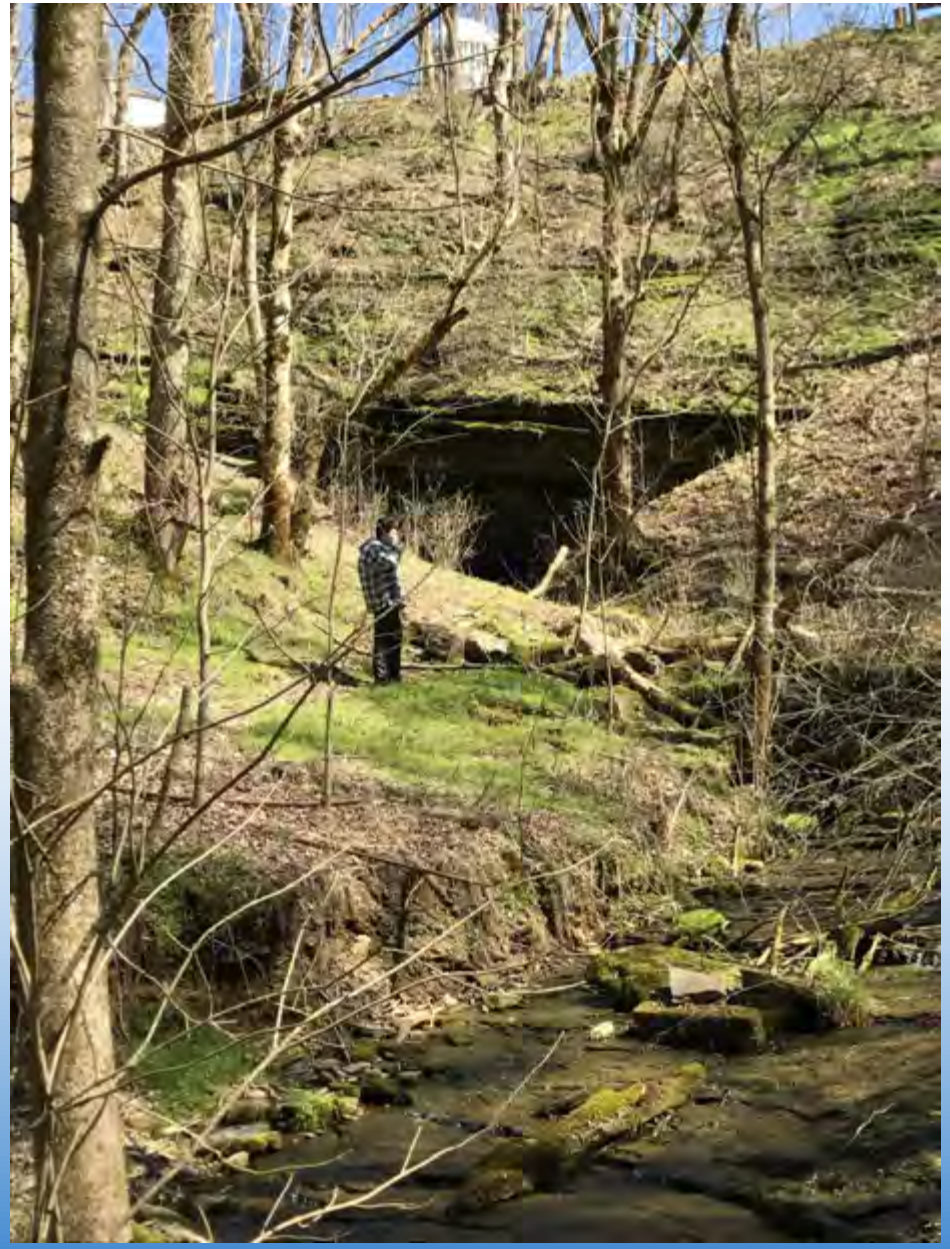
Source: Kentucky Geological Survey

Something Extra: High-Resolution Electrical-Resistivity Geophysical Surveys

Helps Identify Most Favorable Target Locations for Monitoring Wells, Piezometers, Deep Lysimeters, Along the Sinkhole-to-Spring Flow Path

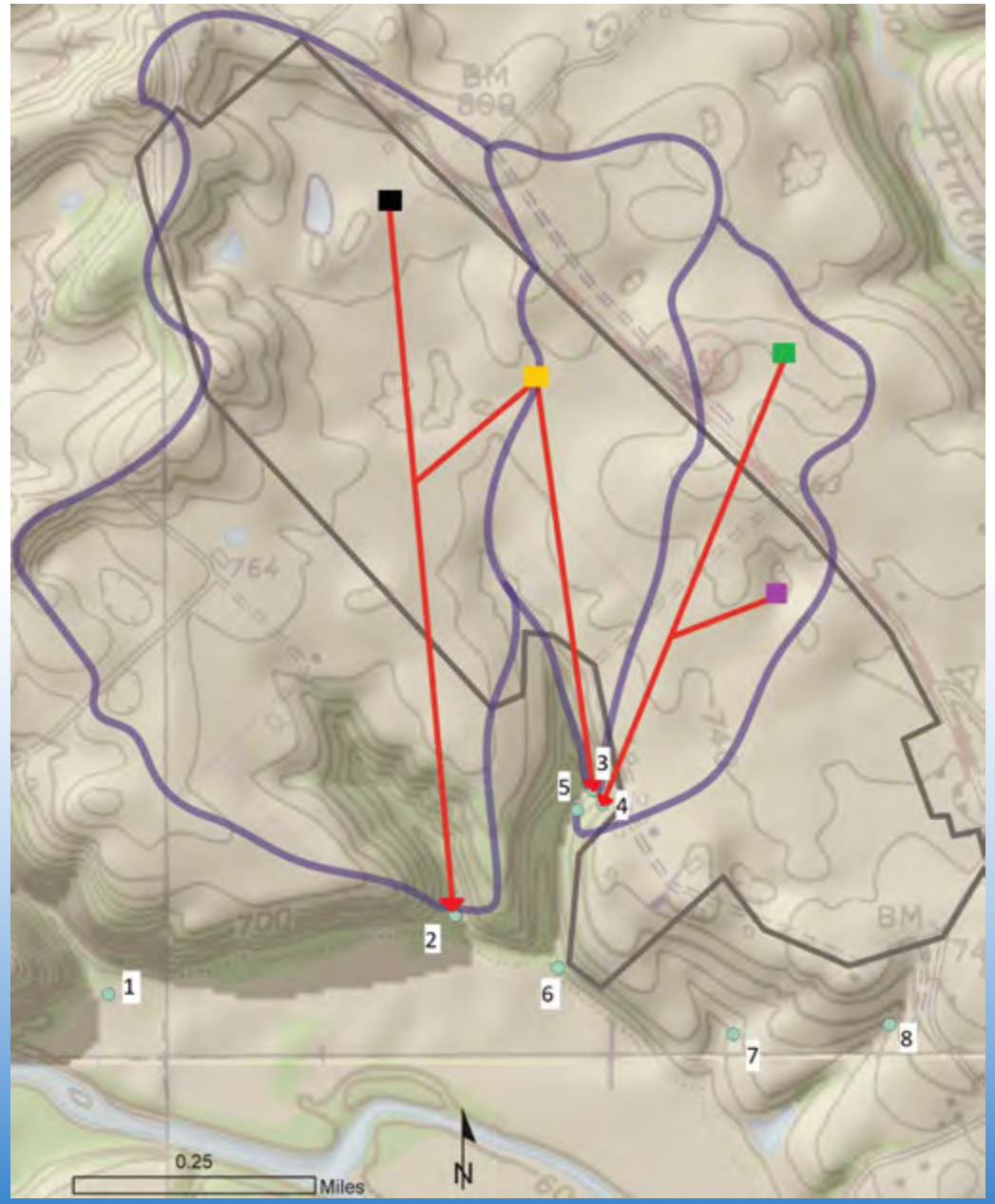


Karst Springs at Homeplace



Qualitative Dye-Tracing Tests

- Four different dyes injected at different sinkhole locations.
- Monitored for tracer dye resurgence at karst springs and streams in the study area (22 sq. mi).
- Major finding: Most sinkholes in the main cropped field do not drain to Cave Spring as originally thought!
- Will need more dye tracing to confirm/delineate karst basin boundaries north and east of Homeplace farm.

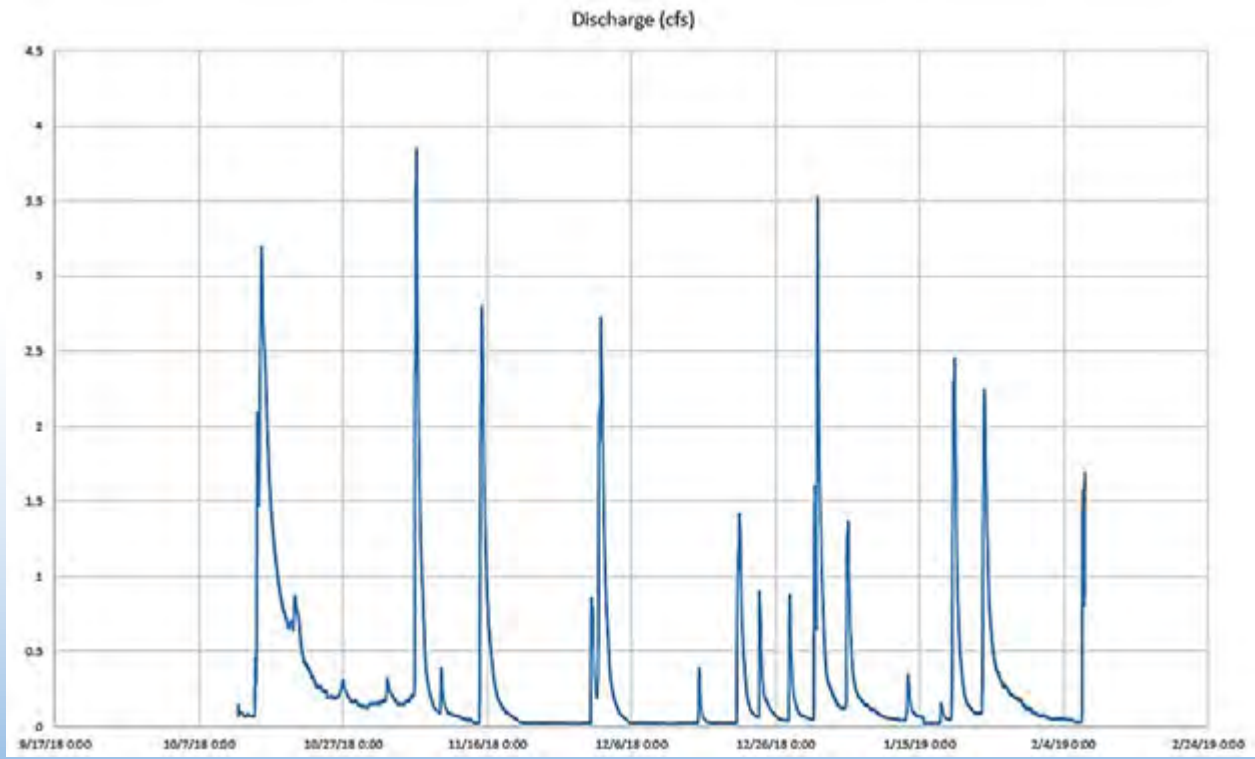


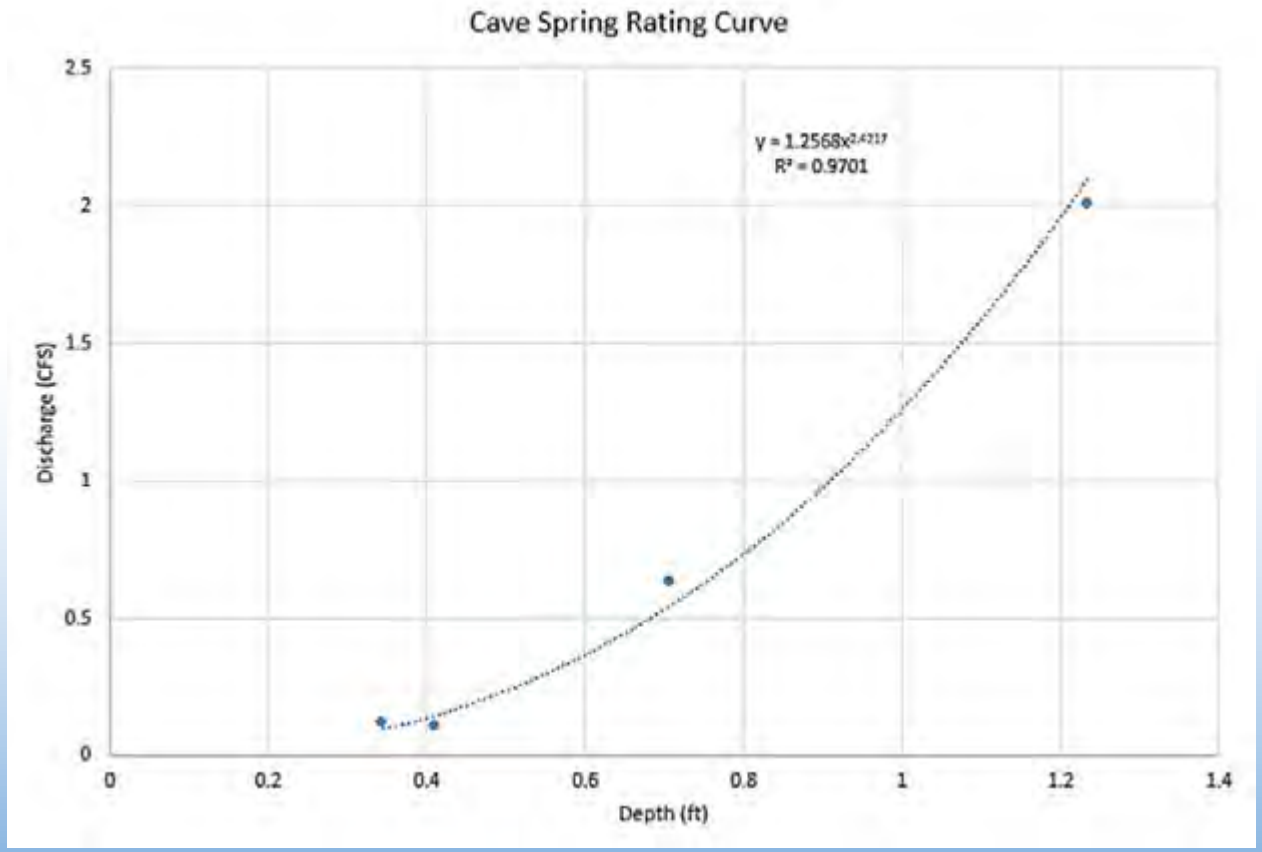
Spring name or ID	Map number
Site 1	1
Site 3	2
Cave Spring	3
Wall Spring	4
Tributary Spring	5
Site 4	6
Site 5	7
Camp Spring	8

Continuous Monitoring Equipment We Installed at the Site for the Study

- Aluminum H-Flume with Stilling Well/Pressure Transducer.
- Portable Steel Plate Weir.
- Continuous Multi-parameter Field WQ Probes and Data Logger.
- On-Site Rain Gage

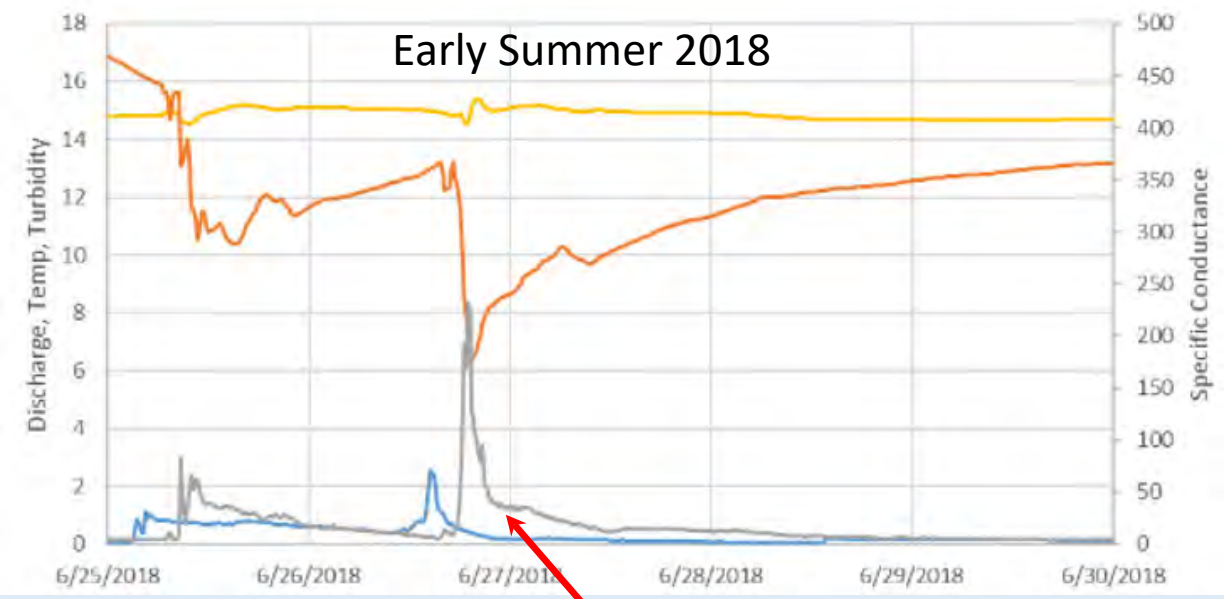
Example Spring Discharge Hydrograph and Stage-Discharge Rating Curve for Cave Spring

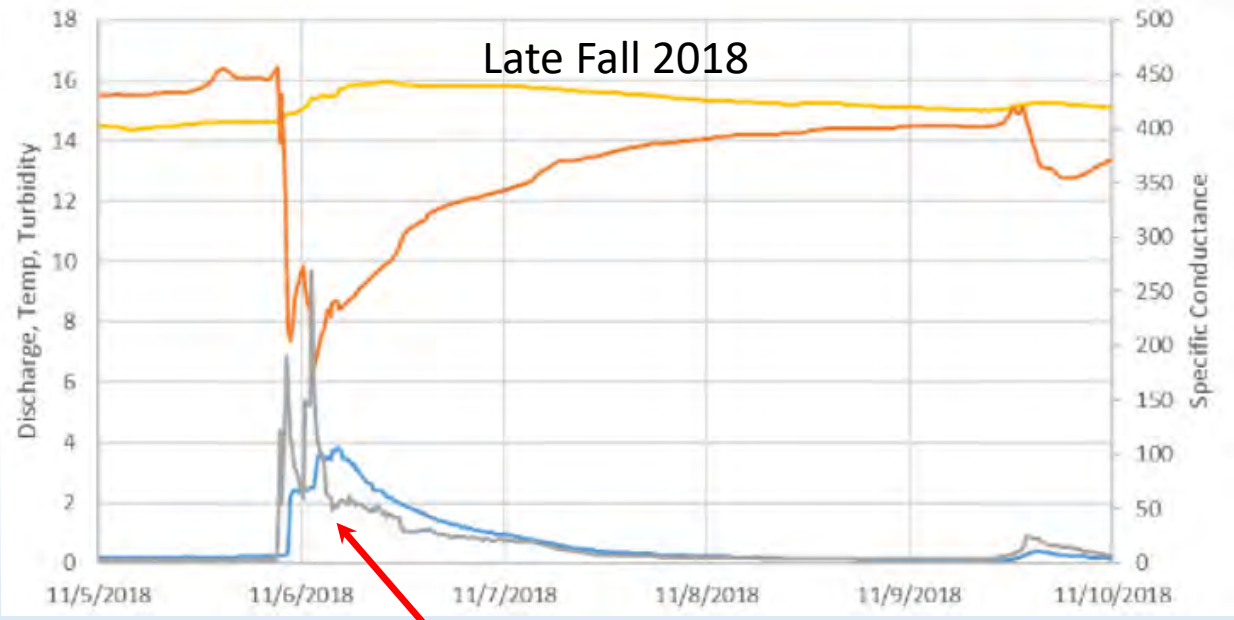




Spring exhibits a very flashy response to storms and very low base flow discharge, suggesting little internal storage.

Examples of Monitored Responses in Spring Discharge (Flow and Field Water-Quality Parameters)





Discharge
Temperature
Specific Conductance
Turbidity

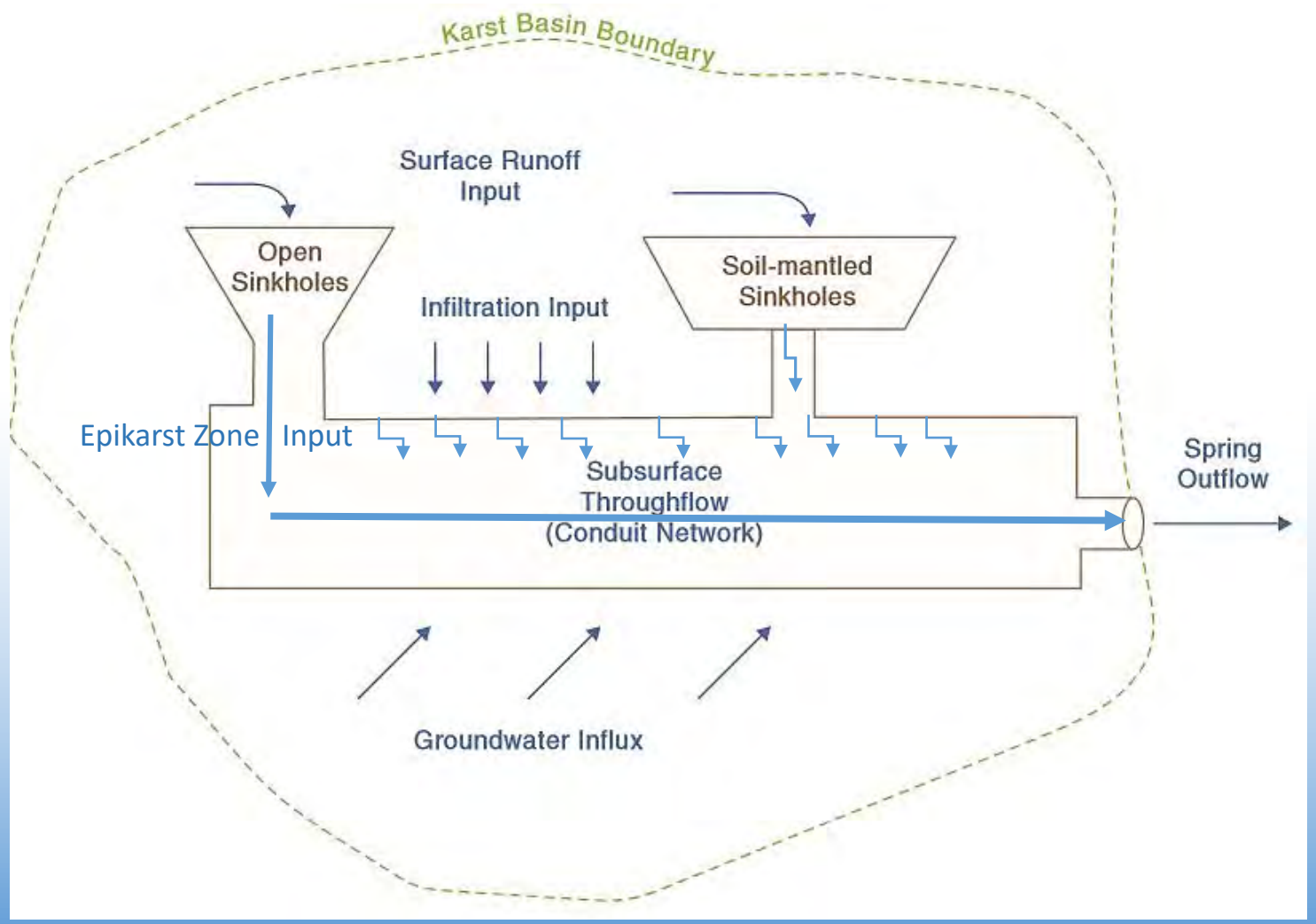
Early Summer storm event: Discharge (flow) increase precedes turbidity spike and conductivity drop.

Late Fall storm event: Discharge (flow) increase lags behind turbidity spike and conductivity drop.

Our project summary report (in final prep) contains a detailed statistical analysis of these data, for multiple storm events.

Demonstrated Requirements for EoF Monitoring In Karst

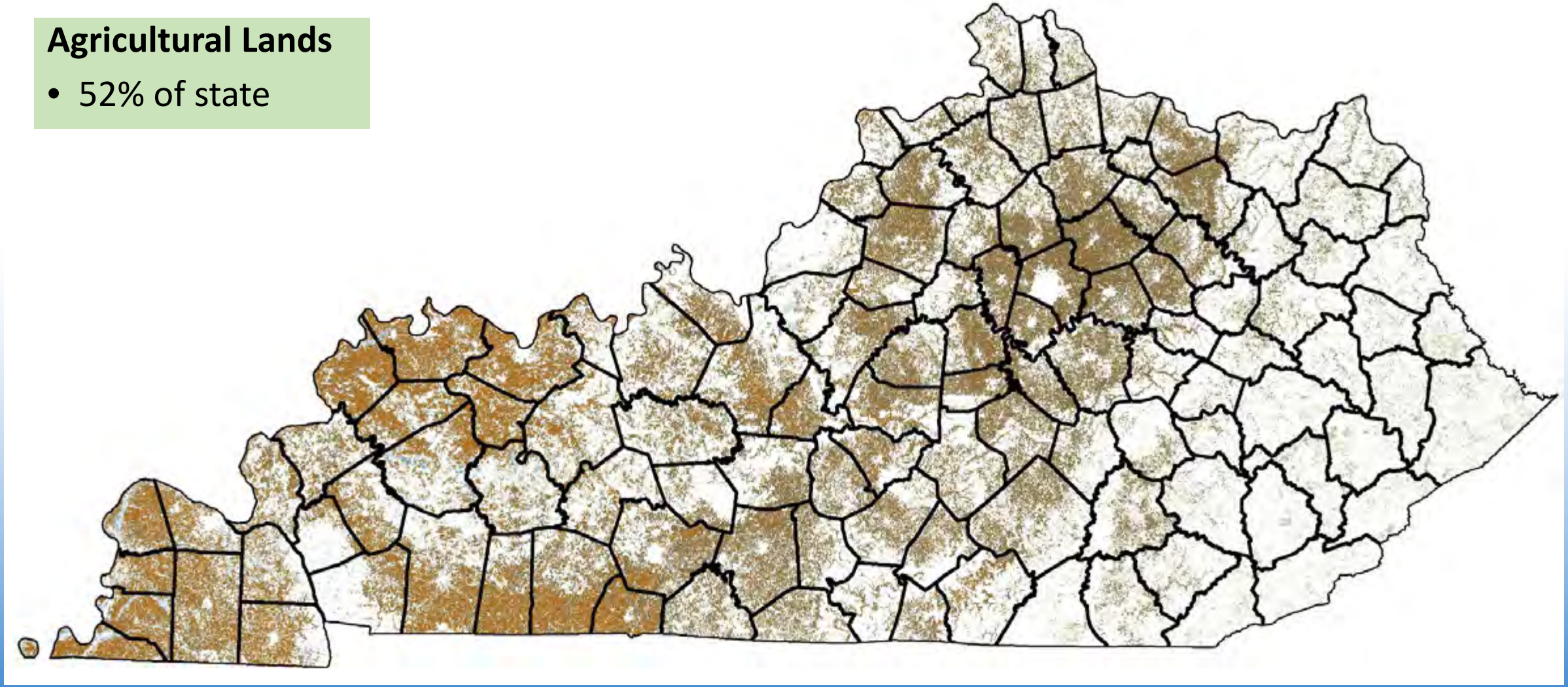
- In Karst, the EoF Flow Path Is Complex and Multi-Faceted ("Multi-Dimensional"):
- A Spring is the Ultimate Receptor and End Point for Cropped Field Runoff—Must Sample There.
- Have to Delineate Flow paths and Spring Catchment Boundaries First!
- Also Need to Map the Sinkholes (Sub-Basins), Their Drainage Characteristics ("Open vs. Closed"), and Land Uses.
- The EoF: Surface Runoff Draining to Sinkhole Bottoms (or Swallet Throats).
- Sample Subsurface Karst Water Components that Also Contribute to Spring Flow and WQ:
  - Soil, and Epikarst Zone Inputs.
  - Groundwater Input (Bedrock Matrix Water).
- Sampling Timing and Frequency Based on Spring's Rainfall-Discharge Responses.



So Why Is This Study Important?

Agricultural Lands

- 52% of state



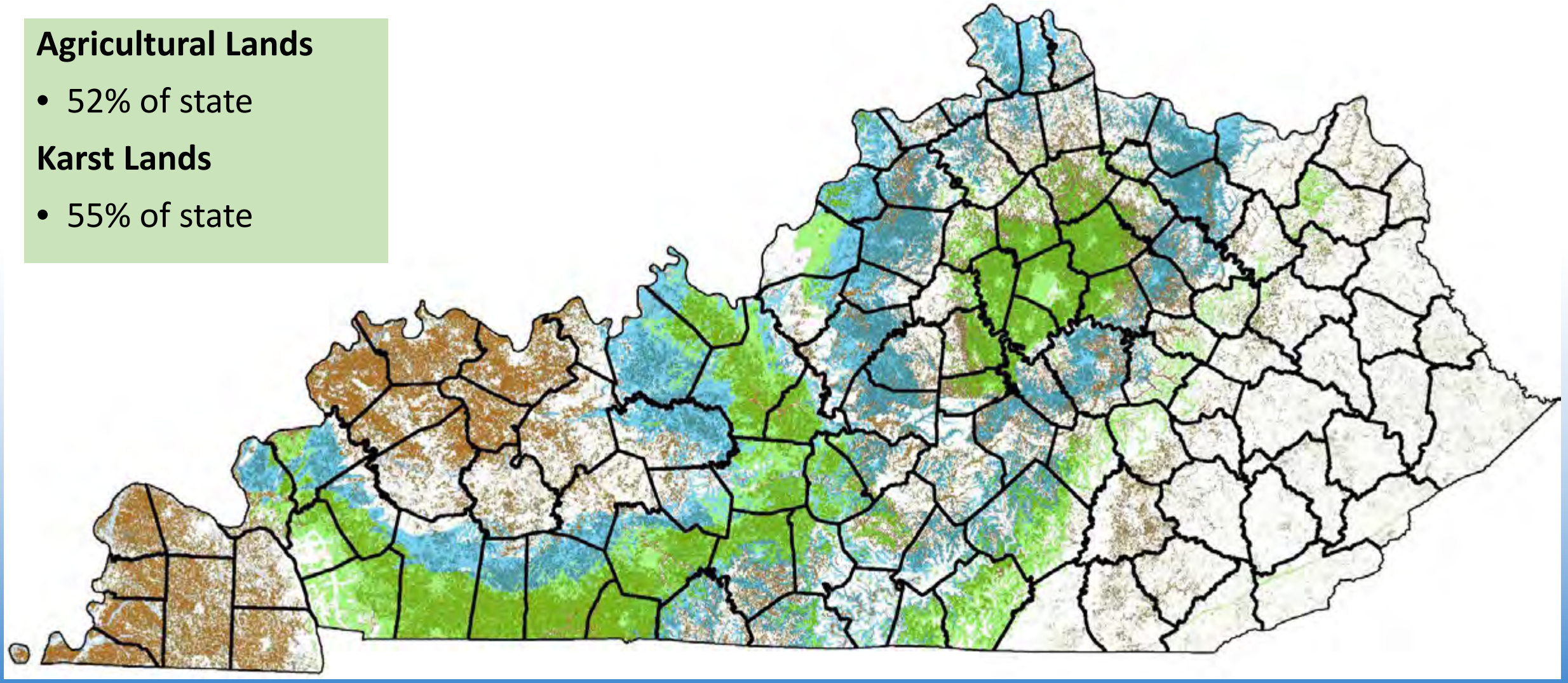
Because Much of Kentucky's Agricultural Production is In Karst Areas

Agricultural Lands

- 52% of state

Karst Lands

- 55% of state



For Questions, or More Information, Contact:

Charles (Chuck) Taylor, Groundwater Hydrologist and Head
Water Resources Section
Kentucky Geological Survey
University of Kentucky
228 Mining and Mineral Resources Bldg
Lexington, KY, 40506
charles.taylor@uky.edu
859-323-0523
https://www.uky.edu/KGS/

GROW APPALACHIA

BEREA COLLEGE

NRCS

U.S. Department of Agriculture

Natural Resources Conservation Service

Regional Conservation Partnership Program (RCPP)

Season Extension for Eastern Kentucky (SEEK)

RCPP SEEK Partners

Letcher County Farmer's Market

Good Thyme's Farm

Wolfe county extension office

Organic Association of Kentucky (OAK)

Laurel County African American Heritage Center

Kentucky Highlands Investment Corporation (KHIC)

Marcella & Gary Clay Farm

East Kentucky Farmer's Conference

Berea Urban Farm

RCPP SEEK Producer Numbers

Applications received:

Period 1 – 23 Applications
Period 2 - 59 Applications
Total – 82

Applications Funded:

Period 1 – 14 Applications Funded = $202,208
Period 2 – 8 Applications Funded = $115,800
Total = $318,008
Per producer Average = $14,455

Counties Served:

12 Strike-force and Promise zone counties
Bell, Clay, Floyd, Jackson, Johnson, Laurel, Letcher, Madison, Pike, Rowan, Whitley, Wolf

Technical Assistance Support

Conservation Planning Support-
15 of 22 contract recipients have received on site planning support

Application and design technical assistance-
8 of 20 have received on site installation and design support

Educational Sessions-
3 of 6 field day educational sessions have been delivered

Upcoming:
Workshop planned for June 25th in Letcher County

Questions?

Contact:
Mark Walden
mark_walden@Berea.edu
859-985-4178

GROW APPALACHIA
BEREA COLLEGE

NRCS
U.S. Department of Agriculture
Natural Resources Conservation Service

KY State Technical Committee Meeting

RCPP – Overgrazing and Soil Degradation on KY Horse Farms

Krista Lea, MS

University of Kentucky

Goals and Objectives

Reduce grazing impacts

Educate horse owners

Facilitate industry connections

Train NRCS staff

By the Numbers

Sept 2017 – Sept 2020

Budget:

- $300,000 – FA
- $129,000 – TA (UK)

20 farms

2 Field days

2 NRCS Trainings

1 Standards Development

To Date:

13 contracts: $231,000

- 322 acres

4 pending: $40,000

3 TBD in winter 2019

Impacts

Misty Ridge Farm
Saturday at 2:46 PM ·
Welcome back into Bottom field!! They haven't lifted their heads once! And that's why they will only get three hours of this lush new grass!!
You +47
3 Comments
Like
Comment
Share

Melita Owens Knapper
March 10 ·
Beautiful Kentucky morning. The sun finally came out
94
29 Comments 1 Share
Like
Comment
Share

NRCS Training

35 field personnel

- 88% had little or no equine experience
- 29% unaware of their potential equine client base

<u>Message</u>

Horses aren't that different from cattle, but the people are!

Western KY Equine Field Day

Sept. 5th, 2019 3:30-8:00 pm
1013 Dripping Springs Rd.
Princeton, KY

Sessions include:

- Utilizing Cost Share on Horse Farms
  – Adam Jones
- Using Cost Share to Reduce Overgrazing
  – Krista Lea and Frank Yancey

Questions?

Krista Lea, MS
UK Plant and Soil Science
N-222C Ag. Science Center North
Lexington, KY 40546
859-257-0597

Krista.lea1@uky.edu
Forages.ca.uky.edu

United States Department of Agriculture

Source Water Protection

in the 2018 Farm Bill

Kentucky
Natural Resources Conservation Service

Kentucky USDA State Technical Committee
June 5, 2019

Deena Wheby
Assistant State Conservationist for Programs

Natural Resources Conservation Service

nrcs.usda.gov/

2018 Farm Bill

- ✓ **SEC. 1244. [16 U.S.C. 3844] ADMINISTRATIVE REQUIREMENTS FOR CONSERVATION PROGRAMS.**
  (n) SOURCE WATER PROTECTION THROUGH TARGETING OF AGRICULTURAL PRACTICES.—

NOT:

SEC. 1240O. [16 U.S.C. 3839bb–2] GRASSROOTS SOURCE WATER PROTECTION PROGRAM.

(a) IN GENERAL.—The Secretary shall establish a national grassroots water protection program to more effectively use onsite technical assistance capabilities of each State rural water association that, as of the date of enactment of this section, operates a wellhead or groundwater protection program in the State.

SEC. 1244. [16 U.S.C. 3844] ADMINISTRATIVE REQUIREMENTS FOR CONSERVATION PROGRAMS.

(n) Source Water Protection Through Targeting of Agricultural Practices.—

(1) In General.—In carrying out any conservation program administered by the Secretary, the Secretary shall encourage practices that relate to water quality and water quantity that protect source waters for drinking water (including protecting against public health threats) while also benefitting agricultural producers.

(2) Collaboration with Water Systems and Increased Incentives.—

(A) In General.--In encouraging practices under paragraph (1), the Secretary shall—

(i) work collaboratively with community water systems and State technical committees established under section 1261(a) to identify, in each State, local priority areas for the protection of source waters for drinking water; and

(ii) subject to subparagraph (B), for practices described in paragraph (1), offer to producers increased incentives and higher payment rates than are otherwise statutorily authorized by the applicable conservation programs administered by the Secretary.

(B) Limitation.—An increased payment under subparagraph (A)(ii) shall not exceed 90 percent of practice costs associated with planning, design, materials, equipment, installation, labor, management, maintenance, or training.

(3) Reservation of Funds.—

(A) In General.--In each of fiscal years 2019 through 2023, the Secretary shall use to carry out this subsection not less than 10 percent of any funds available for conservation program administered by the Secretary under this title (other than the conservation reserve program established under subchapter B of chapter 1 of subtitle D).

(B) Limitation.—Funds available for a specific conservation program shall not be transferred to fund a different conservation program under this title.

NRCS National Bulletin 300-19-25
Preparing for Source Water Protection Activities

By September 30, 2019:

- **Identify priority areas**
  - Entire or portions of already identified source water protection areas (SWPA)
  - Should have a protection plan, in addition to an assessment that:
    - characterizes the source water,
    - identifies areas of concern,
    - potential threats, and
    - describes source water protection goals and an action plan for implementation
- **More guidance to come on:**
  - identifying priority practices for the increased payment rates
  - 10 percent targeting

- Today is an introduction to the topic.
- Will have a meeting later this summer for those interested in this topic to come together to identify and recommend priority areas to NRCS.

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Kentucky's Source Water Protection Program

Robert J. Blair, P.G.
Source Water Protection Coordinator
Kentucky Division of Water
Watershed Management Branch

NRCS State Technical Committee
June 5, 2019

Kentucky
UNBRIDLED SPIRIT™

Source Water Protection Planning

- Select Planning Committee – community representation
- Delineate Protection Zones – contributing areas of Water Supply Source(s)
- Contaminant Source Inventory – identify potential contaminants
- Develop Management Strategies – regulatory, BMP, E & O
- Contingency Planning – drought, contamination, alternatives
- Implementation – management strategies, review & update

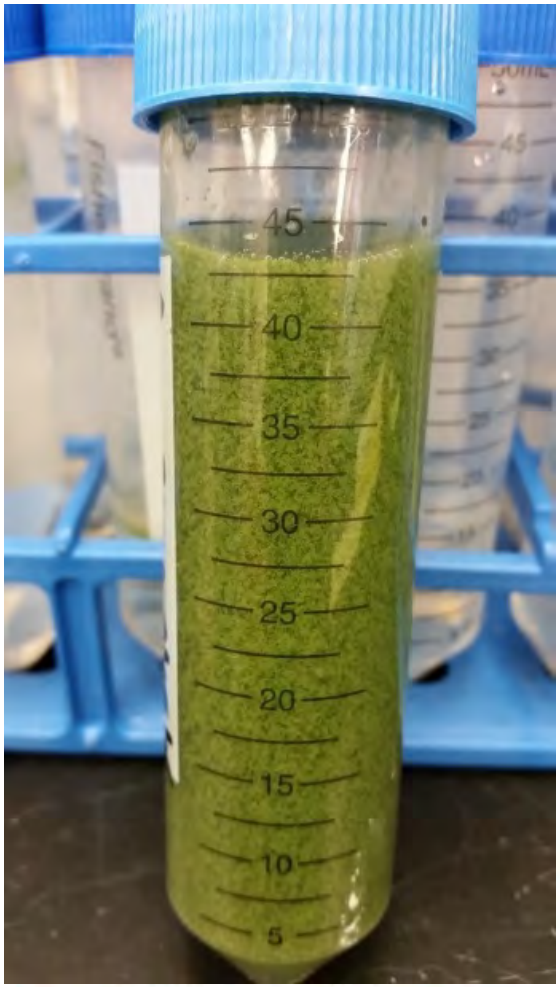
Reasons for Source Water Protection

- Health-based impacts to drinking water
  - Elevated nutrients
  - Increased turbidity
  - Pathogens

- Leads to immediate and significant impacts
  - Harmful Algal Blooms (HABs)
  - Disinfection By-Products (DBPs)
  - Increased drinking water treatment costs

HABs

Ohio River at NKWD intake, Sept 9



Nutrient Reduction Strategy

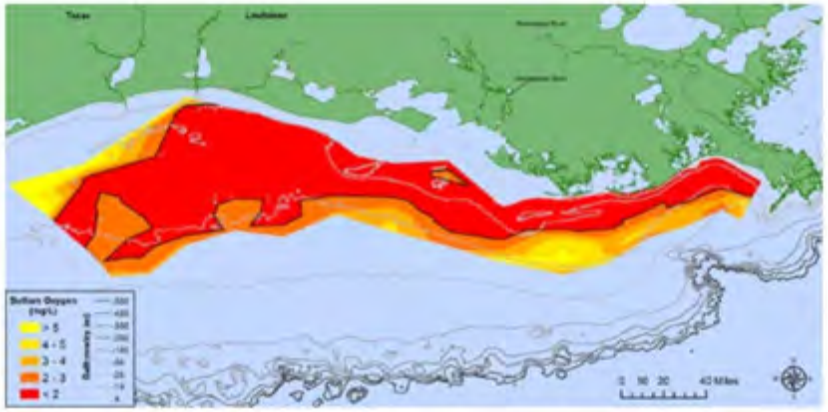
Gulf Hypoxia Task Force - Zone Reduction Goal

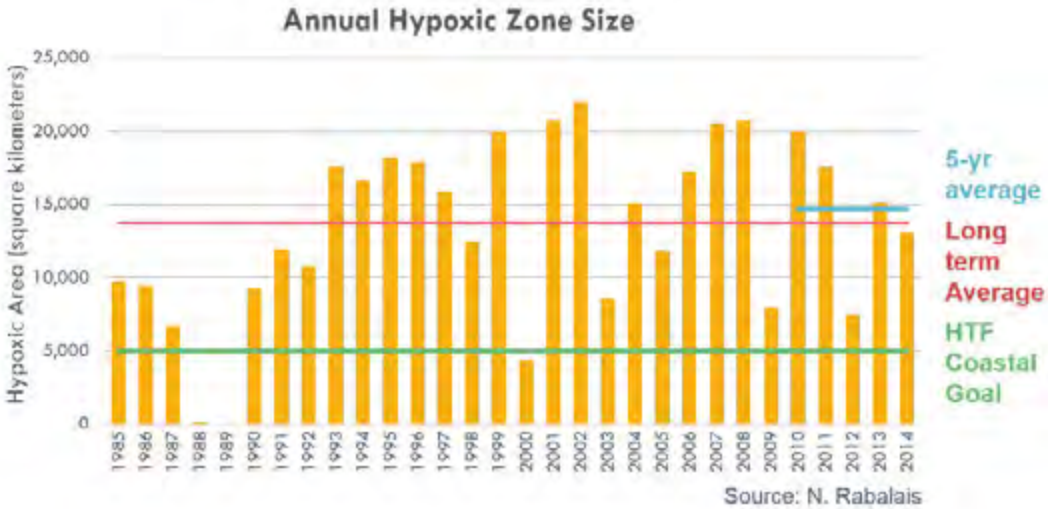
Coastal Goal:

By 2035, reduce 5-year running average size of the Gulf hypoxic zone to 5,000 km^2

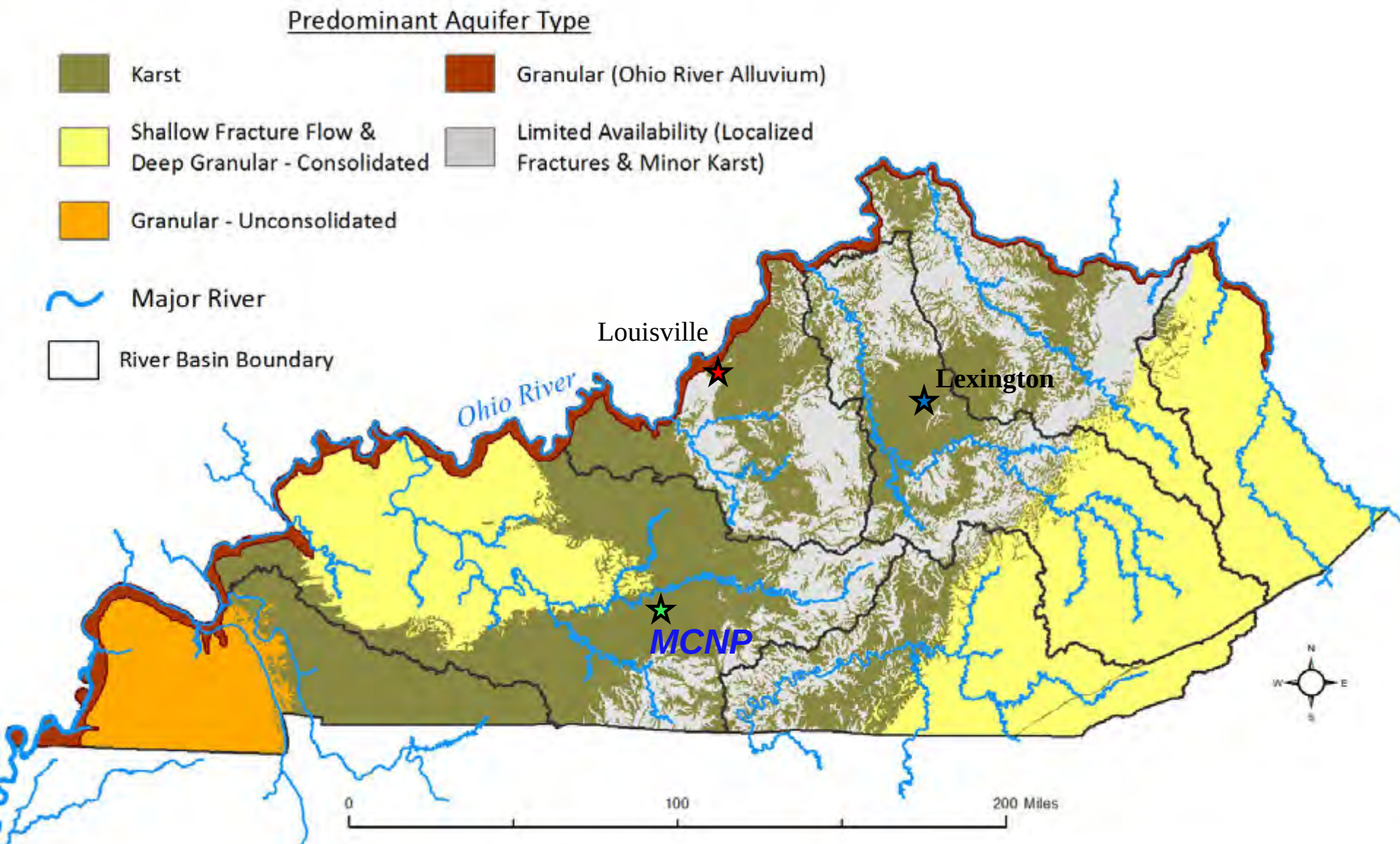
Interim Target:

20% reduction of nitrogen and phosphorus loading by 2025





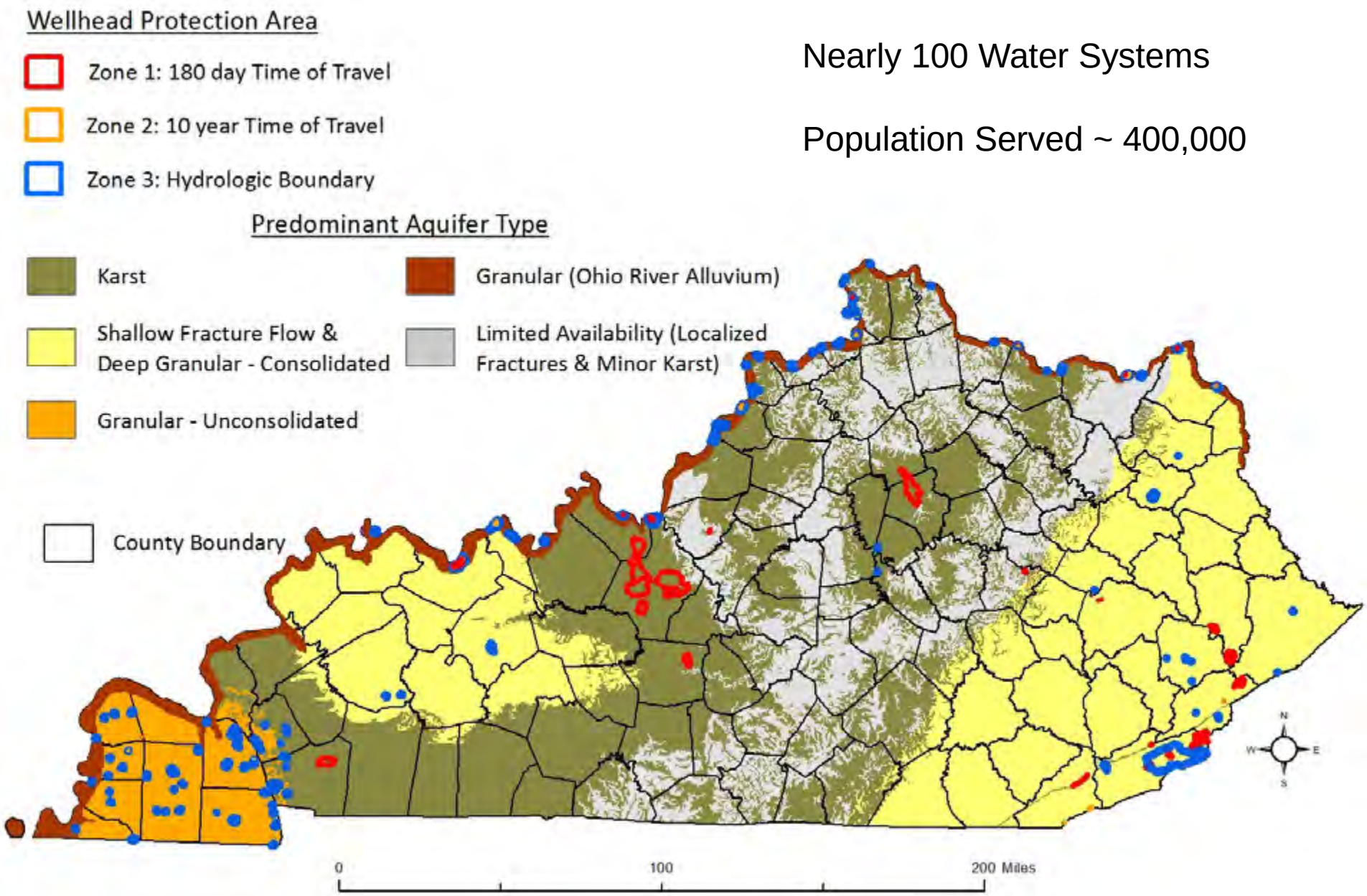
Generalized Hydrography of Kentucky



KY Public Water Supplies - Groundwater

Nearly 100 Water Systems

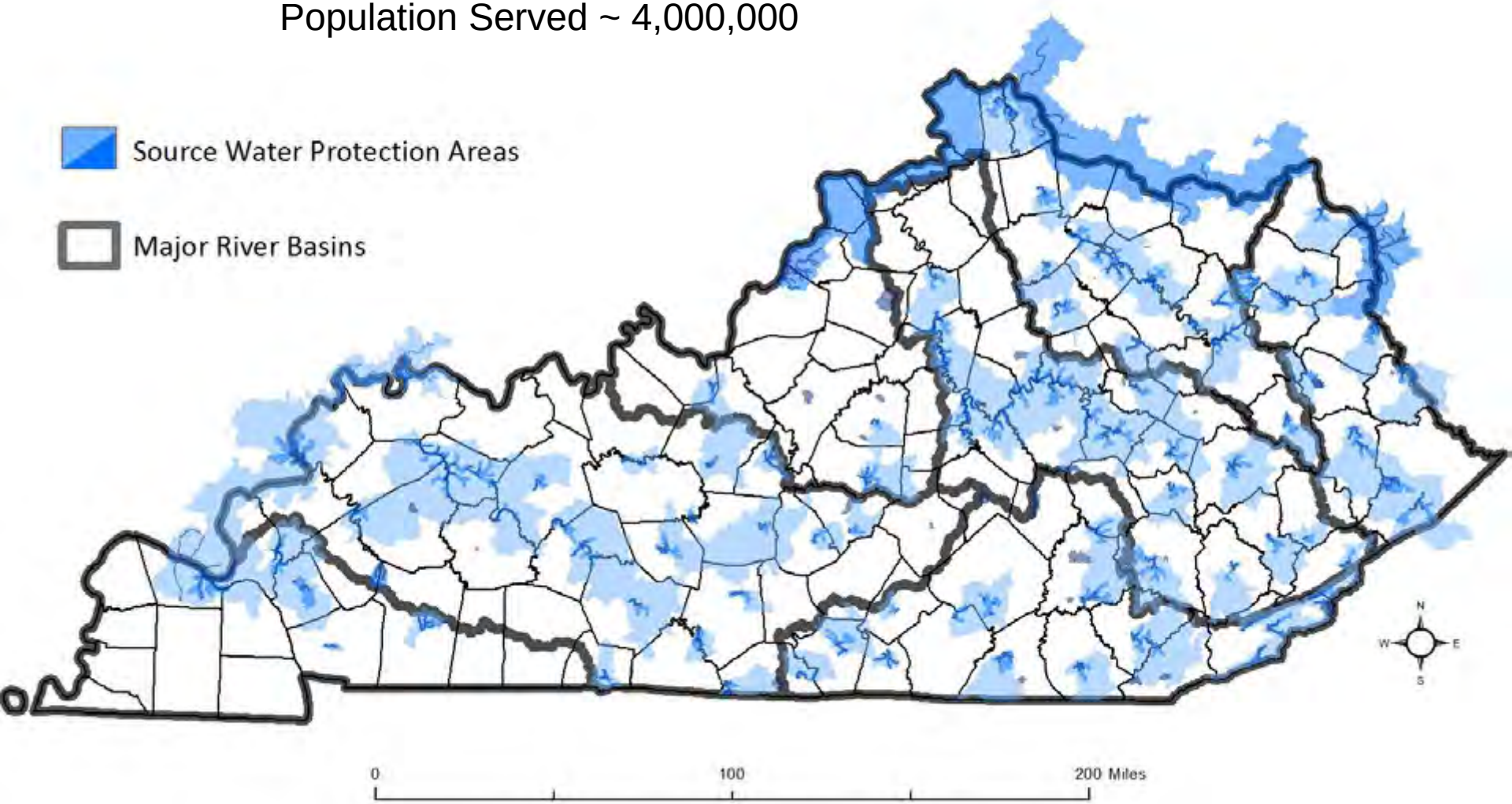
Population Served ~ 400,000



KY Public Water Supplies – Surface Water

Nearly 200 Water Producers

Population Served ~ 4,000,000



Moving Forward with SWP in KY

- Collaboration and Partnerships

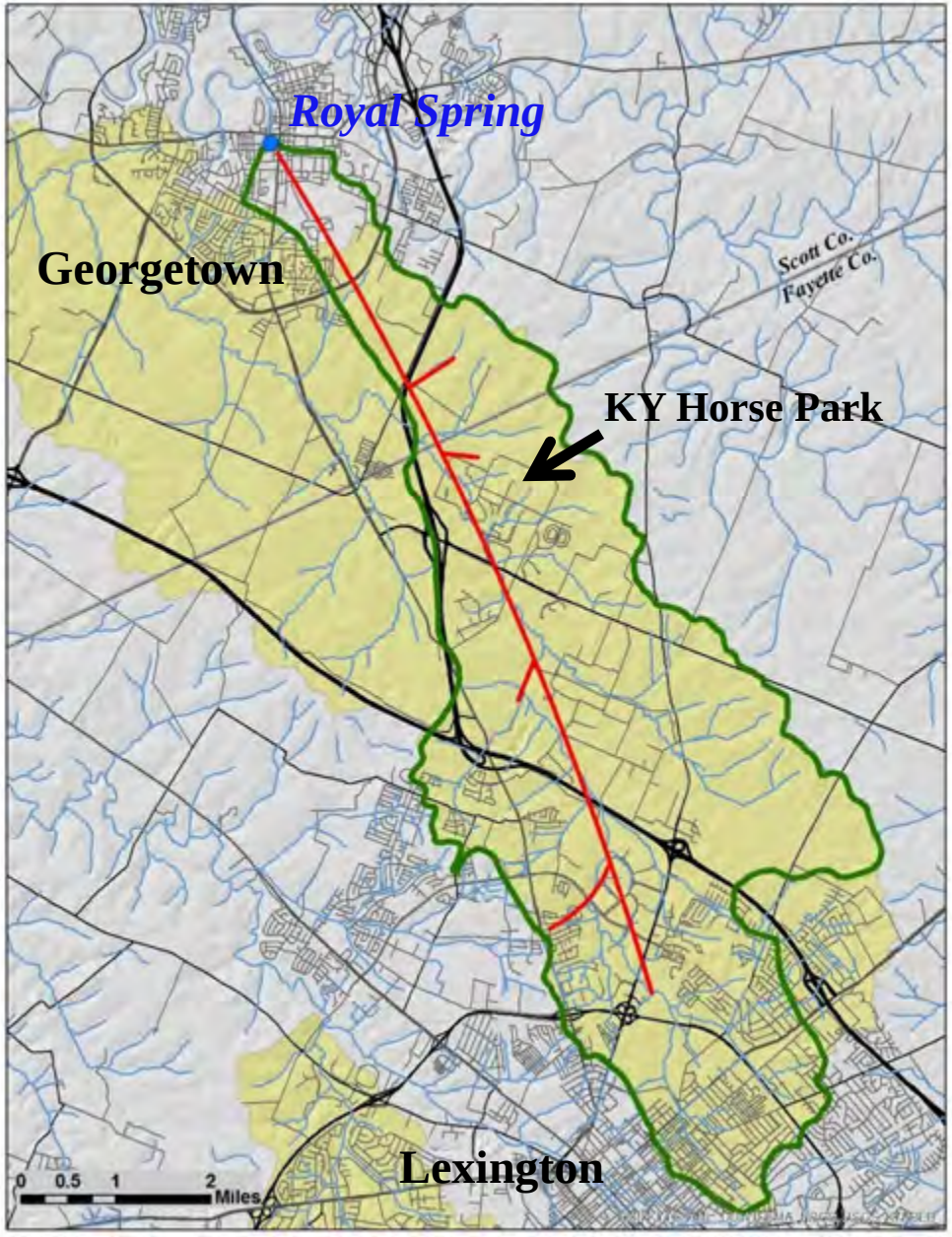
  - CWA 319(h) funding and Watershed Plans
  - Area Development Districts – Water Management Councils
  - Individual Water Systems
  - EPA, USDA, Other agencies

- Evaluate/Update SWP for Surface Water Systems

  - Focus on Management and Implementation

- Promote programs and assistance at workshops and meetings throughout Kentucky

CWA-SWP Collaboration

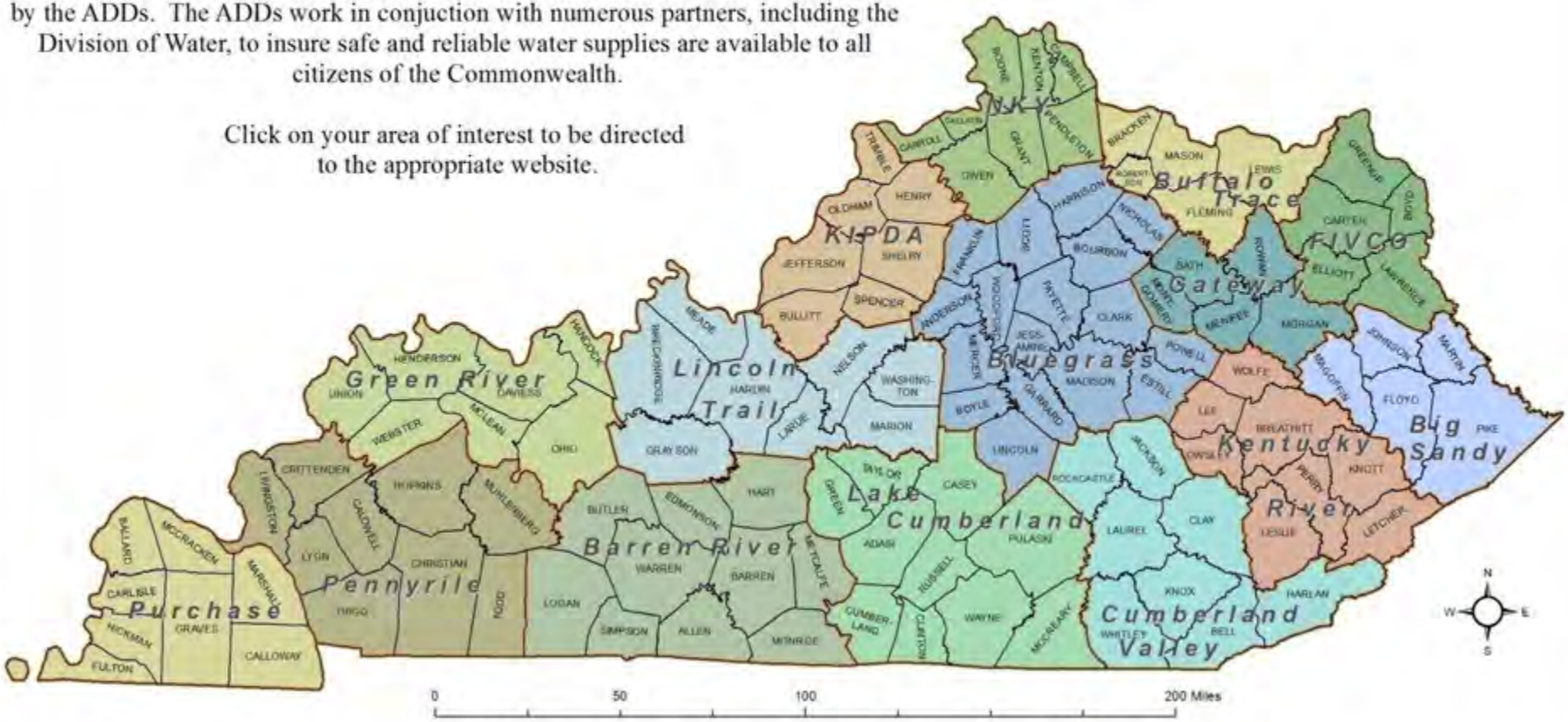


Collaboration and Partnerships

Water Supply Planning and Kentucky Area Development Districts (ADD)

Regional planning for water supplies and source water protection is coordinated by the ADDs. The ADDs work in conjuction with numerous partners, including the Division of Water, to insure safe and reliable water supplies are available to all citizens of the Commonwealth.

Click on your area of interest to be directed to the appropriate website.



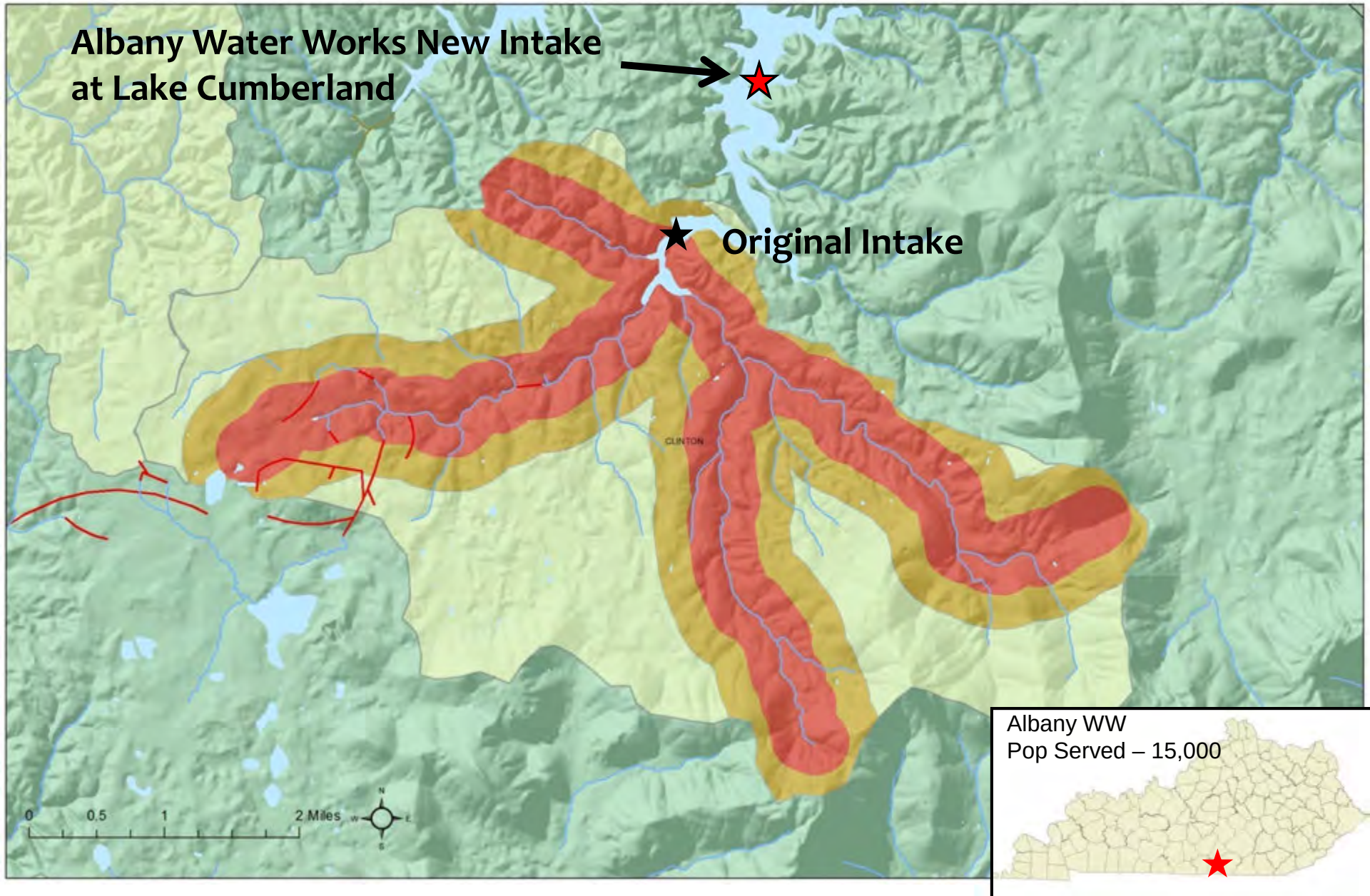
DEP Division of Water | Watershed Management Branch | Frankfort, KY 40601
502-564-3410 (Telephone) | 502-564-9636 (Fax) | julia.harrod@ky.gov

Collaboration and Partnerships

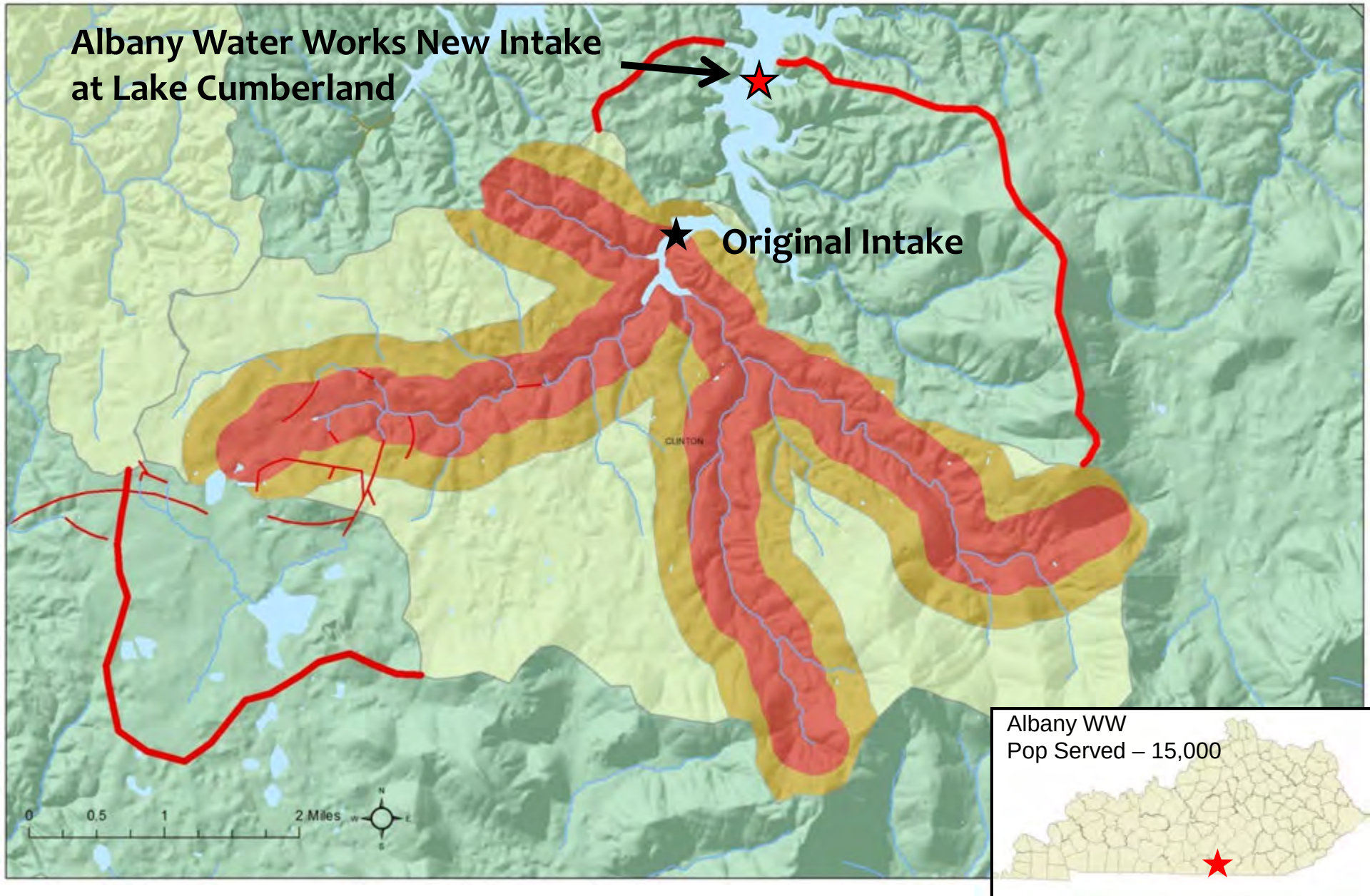
Other government and non-government agencies

- EPA and Region 4 states
- Association of State Drinking Water Administrators
- Drinking Water Advisory Council
- Kentucky Rural Water Association
- USDA Rural Development

SWP Evaluation and Updates



SWP Evaluation and Updates



SWP and Agricultural Connections

- Monitoring
- Analysis of Water Use and Information Needs
- Water Resource Development and Technical Assistance
- Drought Mitigation and Response
- Communications & Outreach
- AWQA and nutrient reduction strategy

SWP and NRCS Activities

- How to obtain and use available data
- How to obtain SWP/WHP Plans
- Water System contacts
- Priority areas identified by DOW

SWP and NRCS Activities

- How to obtain and use available data:

  - GIS Shapefiles for protection areas

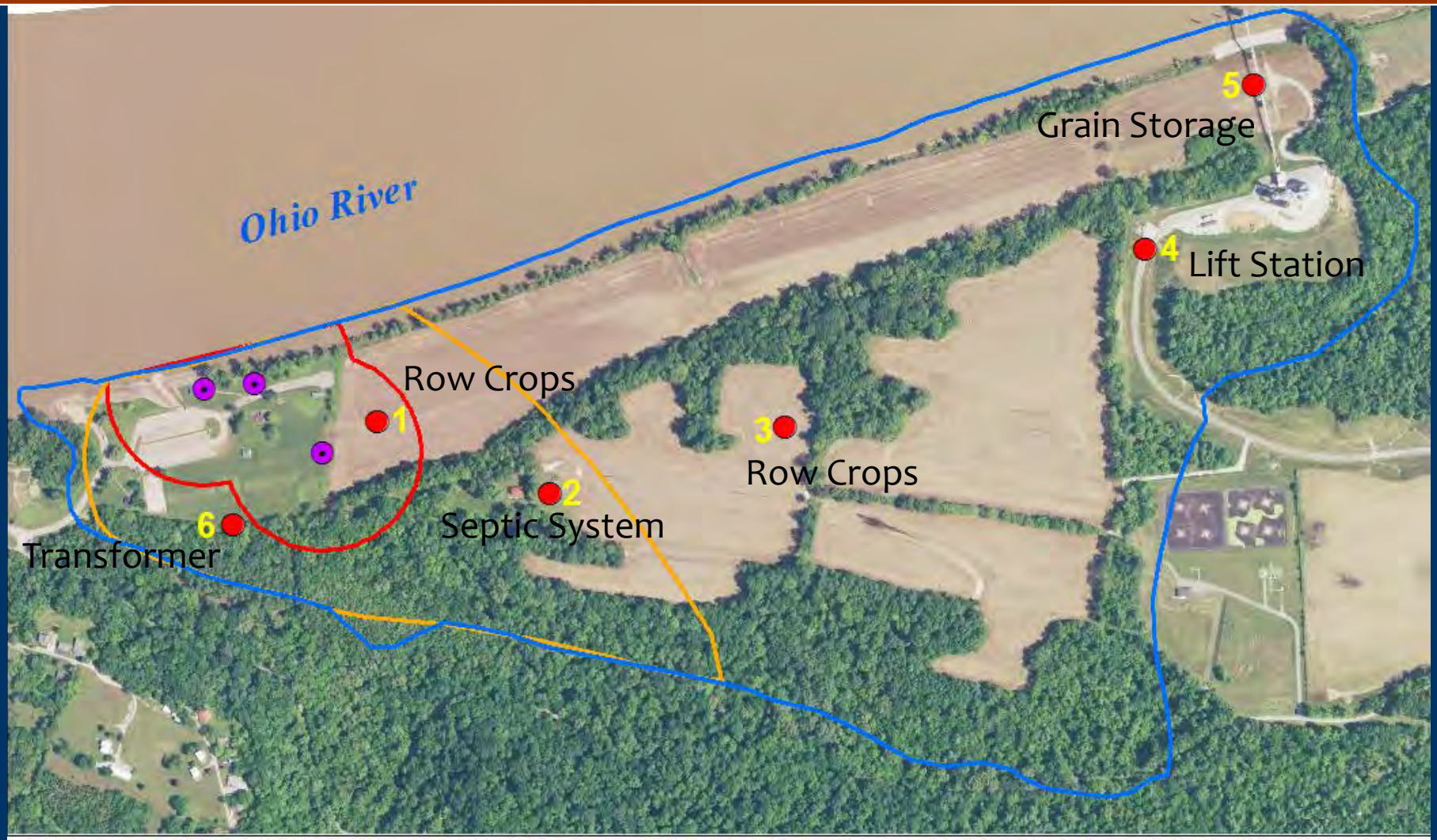
  - GIS Shapefiles for potential contaminants

  - Kentucky Geography Network website:
    DOW SWAPP
    DOW Wellhead Protection Areas

  - Kentucky Division of Water:
    Contaminant Source Inventories

- Kentucky Watershed Viewer (watermaps.ky.gov)

SWP and NRCS Activities



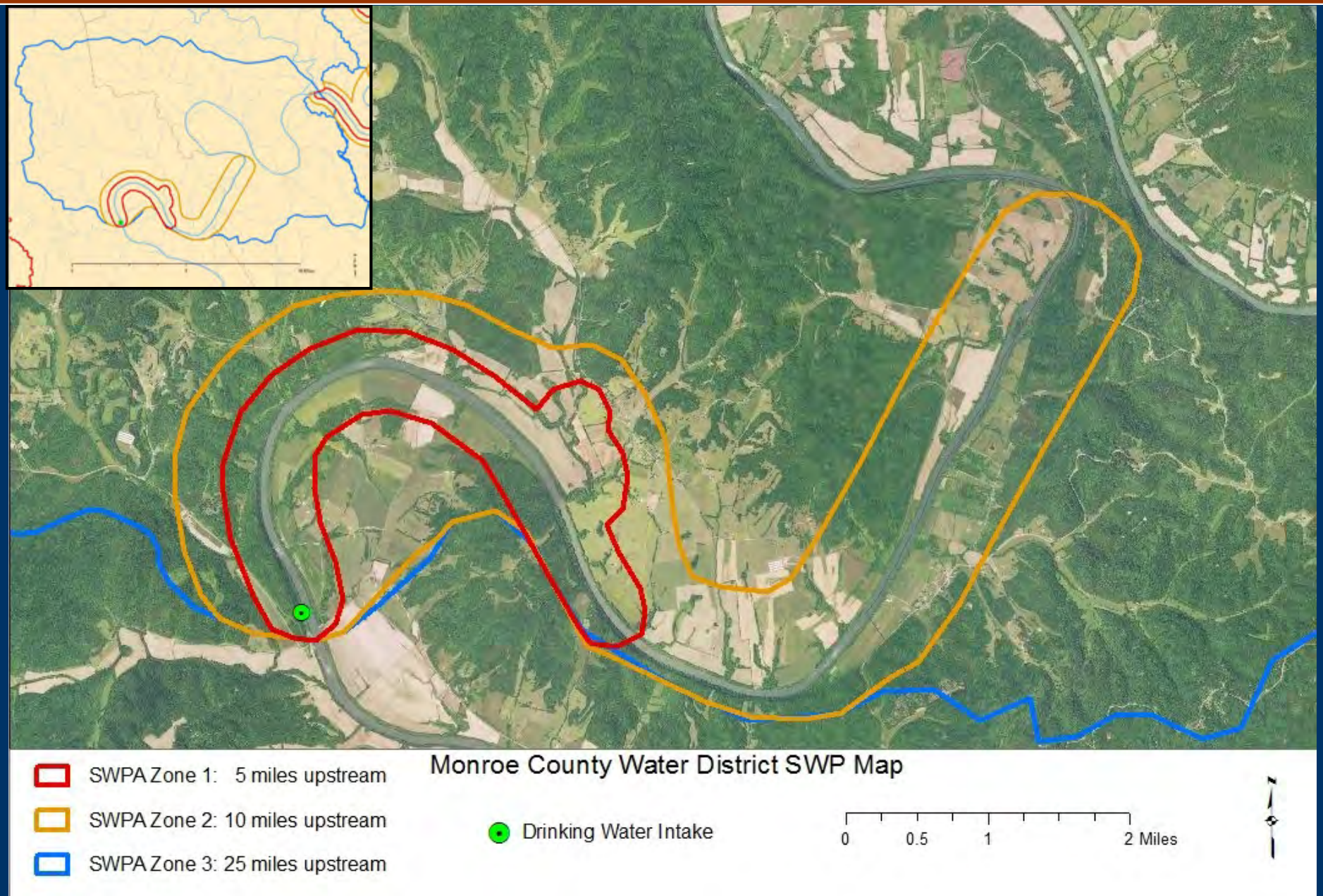
Brandenburg Water Works CSI Map

Zone 1: 180 day time of travel
Zone 2: 10 year time of travel
Zone 3: Hydrologic boundary
Potential contaminant source
PWS well

0 500 1,000 Feet

N

SWP and NRCS Activities



SWP and NRCS Activities

- SWP/WHP Plans from Water System, ADD or DOW

  - WHP have initial plans and 5-yr updates

    a) Update potential contaminants

    b) Update management strategies

    c) Update delineation(s) if necessary

  - SWP have initial plans only, some missing

- Water system contact info from DOW

Closing Thoughts

- Recent national and local events highlight need for SWP
  - Elk River, WV spill (MCHM)
  - HABs on Ohio River (other DW sources)
  - State/Local land use proposals
  - Increased treatment costs

- Successful SWP through partnerships:
  - Government (federal, state and local)
  - Water Systems
  - Communities

- Unique drinking water supplies require individualized assessment, planning and implementation

Questions?

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