This is your WAV on Karst

Understanding the Connections

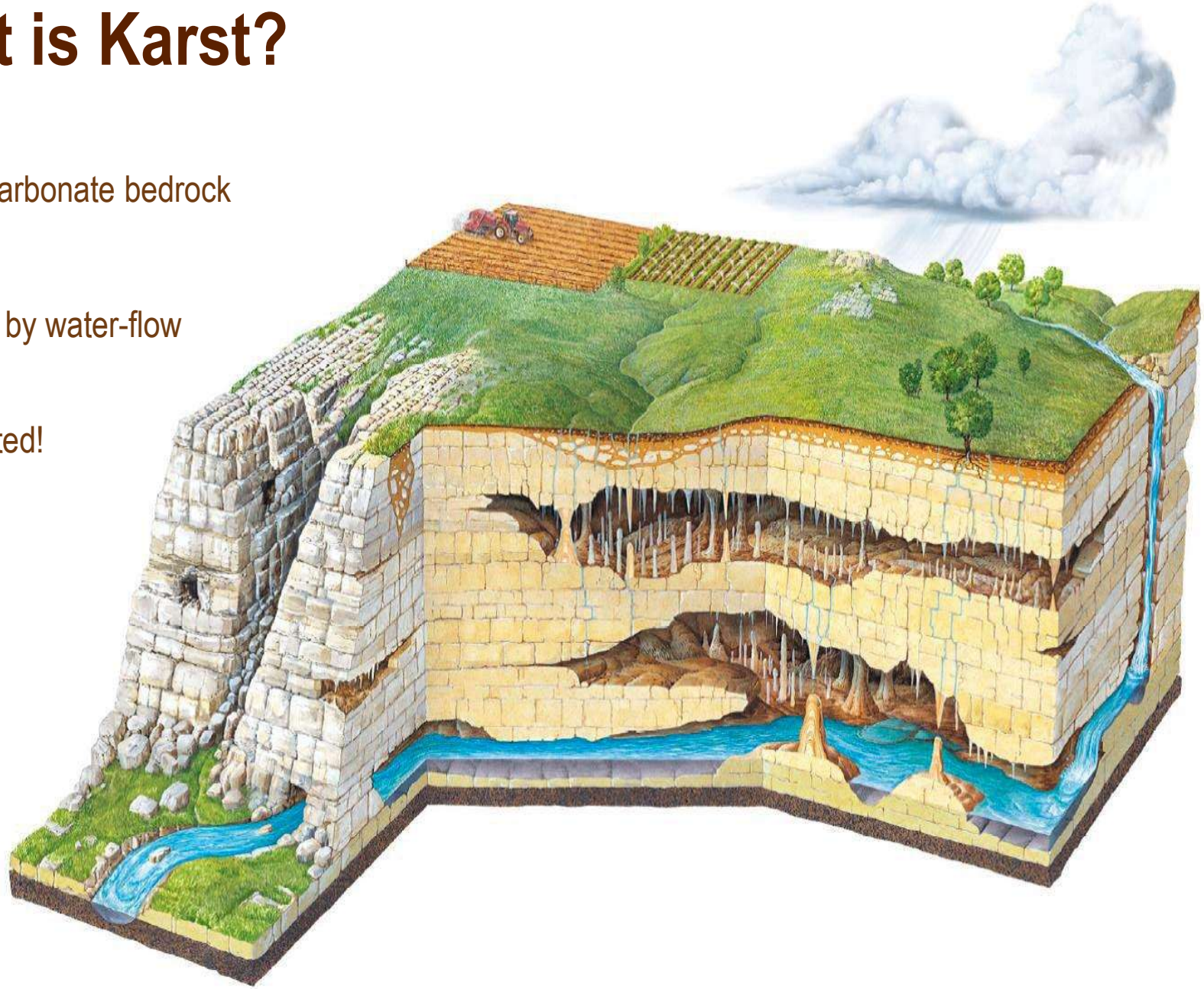
www.CrawfordStewardship.org

What is Karst?

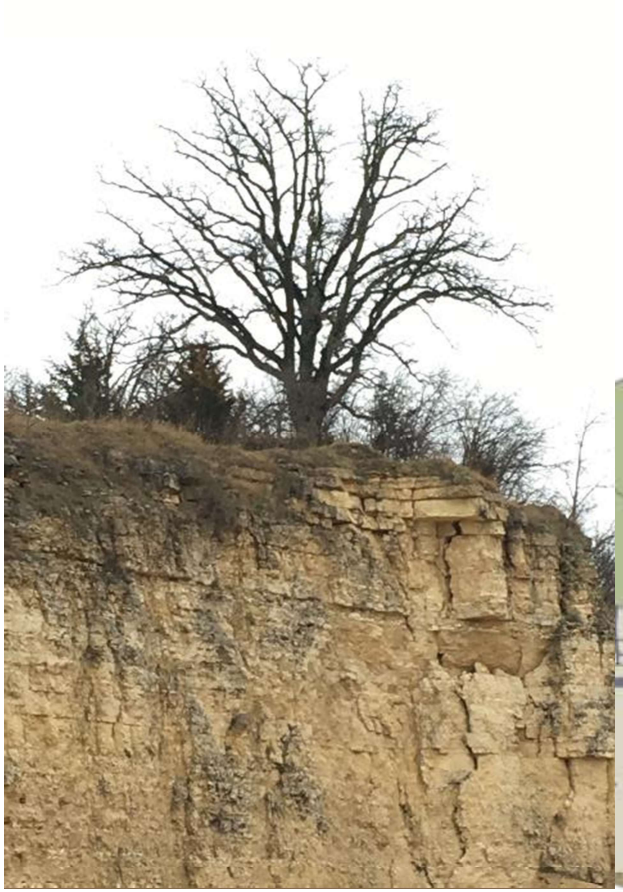
Ancient Carbonate bedrock

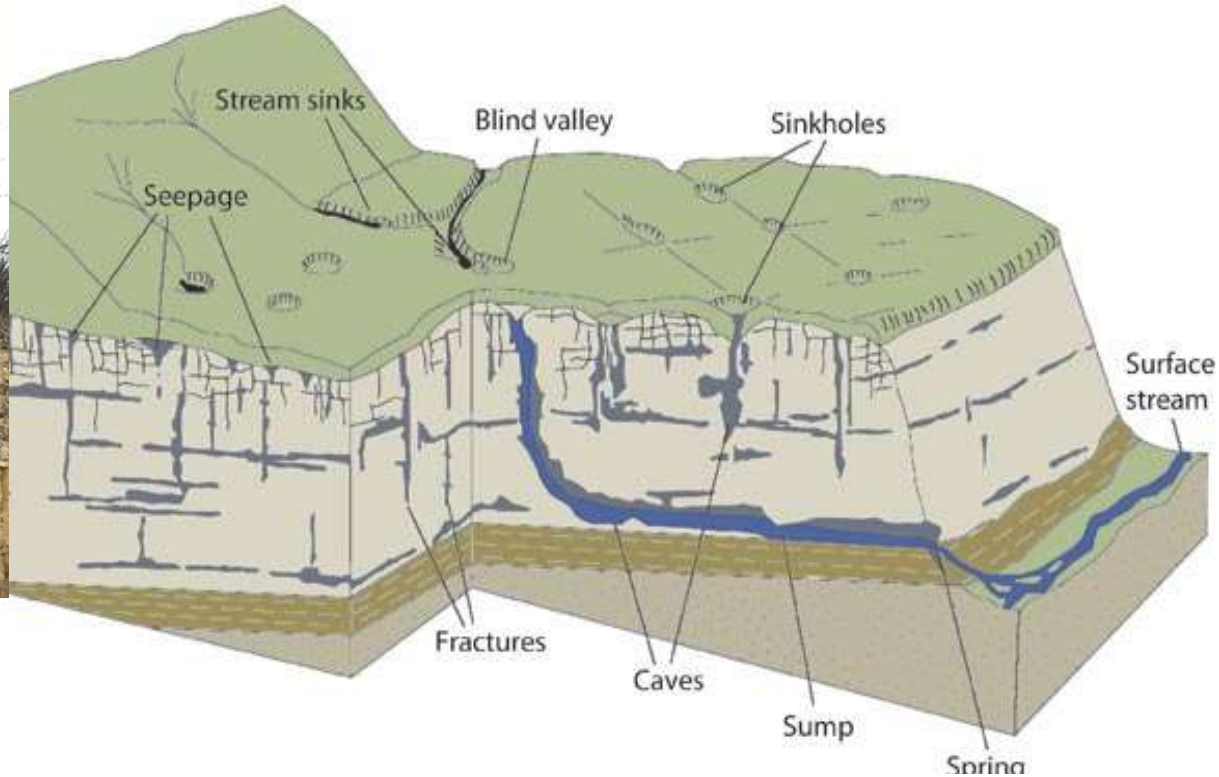
Dissolved by water-flow

Complicated!



Karst features

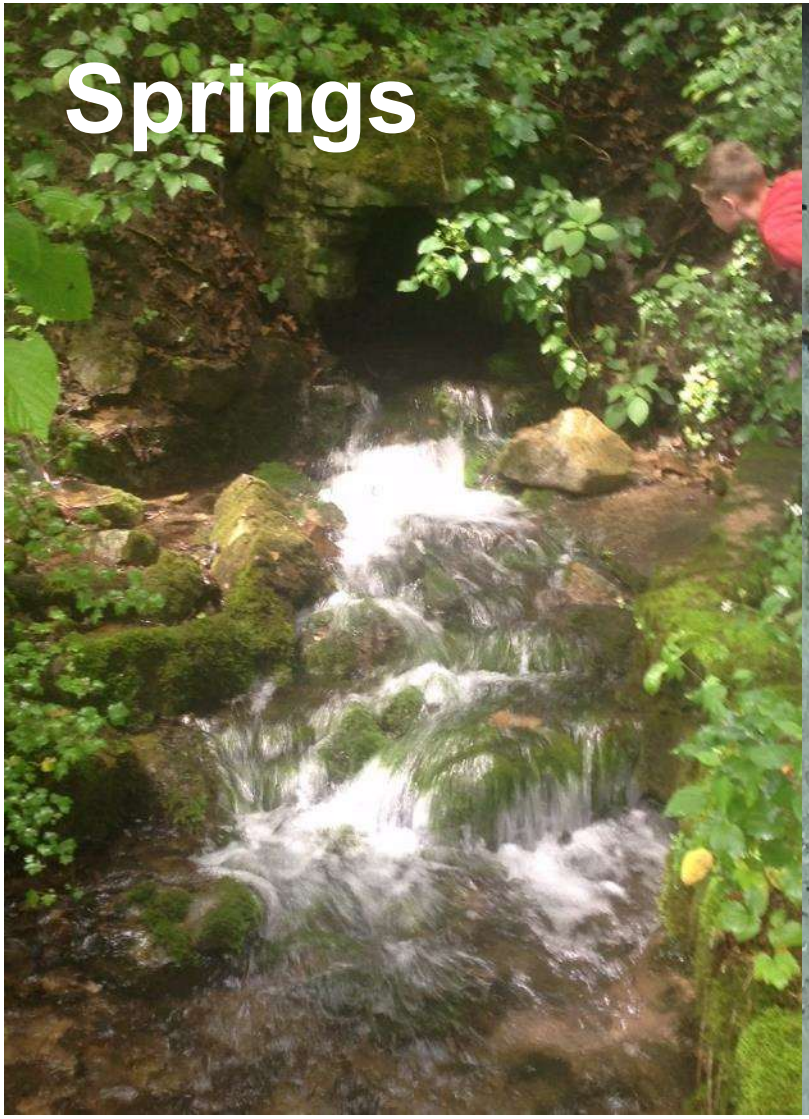




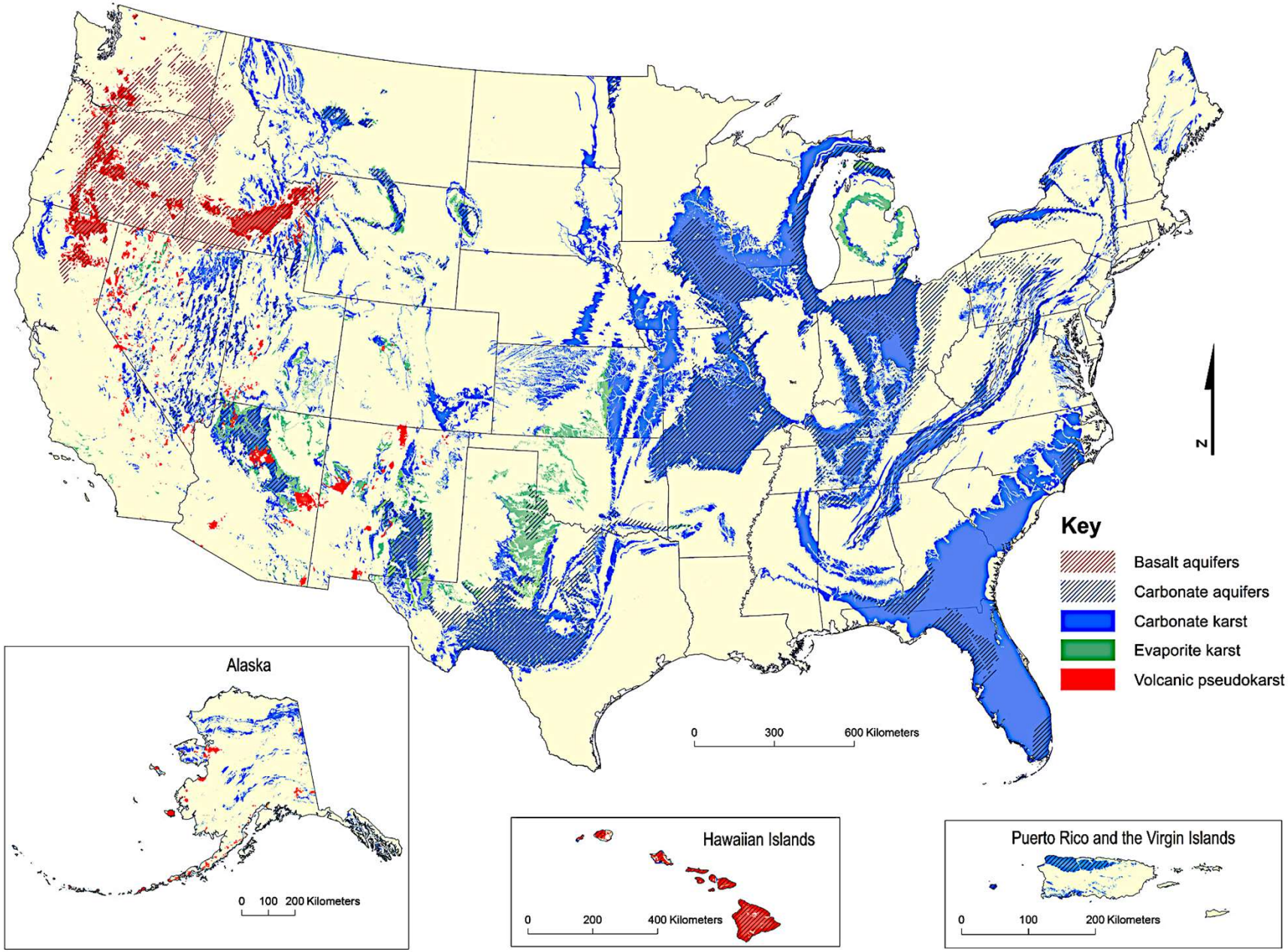
Sinkholes

Caves

Springs



Where is there Karst?



BEDROCK GEOLOGY OF WISCONSIN

UNIVERSITY OF WISCONSIN - EXTENSION
Geological and Natural History Survey

M. E. Ostrom, Director and State Geologist

APRIL 1981
REVISED 1996

LEGEND

Extent of glaciation

PHANEROZOIC

DEVONIAN FORMATIONS

- dolomite and shale

SILURIAN FORMATIONS

- Sd — dolomite

ORDOVICIAN FORMATIONS

- Om — Maquoketa Formation—shale and dolomite
- Os — Sinnipee Group—dolomite with some limestone and shale
- St. Peter Formation—sandstone with some limestone shale and conglomerate
- Opc — Prairie du Chien Group—dolomite with some sandstone and shale

CAMBRIAN FORMATIONS

- Є — sandstone with some dolomite and shale

PRECAMBRIAN

MIDDLE PROTEROZOIC ROCKS

- Keweenawan Rocks—
  - ss, sandstone
  - v, basaltic to rhyolitic lava flows
  - t, gabbroic, anorthositic and granitic rocks
- Wolf River Rocks—
  - g, rapakivi granite, granite and syenite
  - a, anorthosite and gabbro

LOWER PROTEROZOIC ROCKS

- Q — quartzite
- gr — granite, diorite and gneiss
- s, argillite, siltstone, quartzite, graywacke, and iron formation
  - vo, basaltic to rhyolitic metavolcanic rocks with some metasedimentary rocks
  - ga, meta-gabbro and hornblende diorite

LOWER PROTEROZOIC OR UPPER ARCHEAN ROCKS

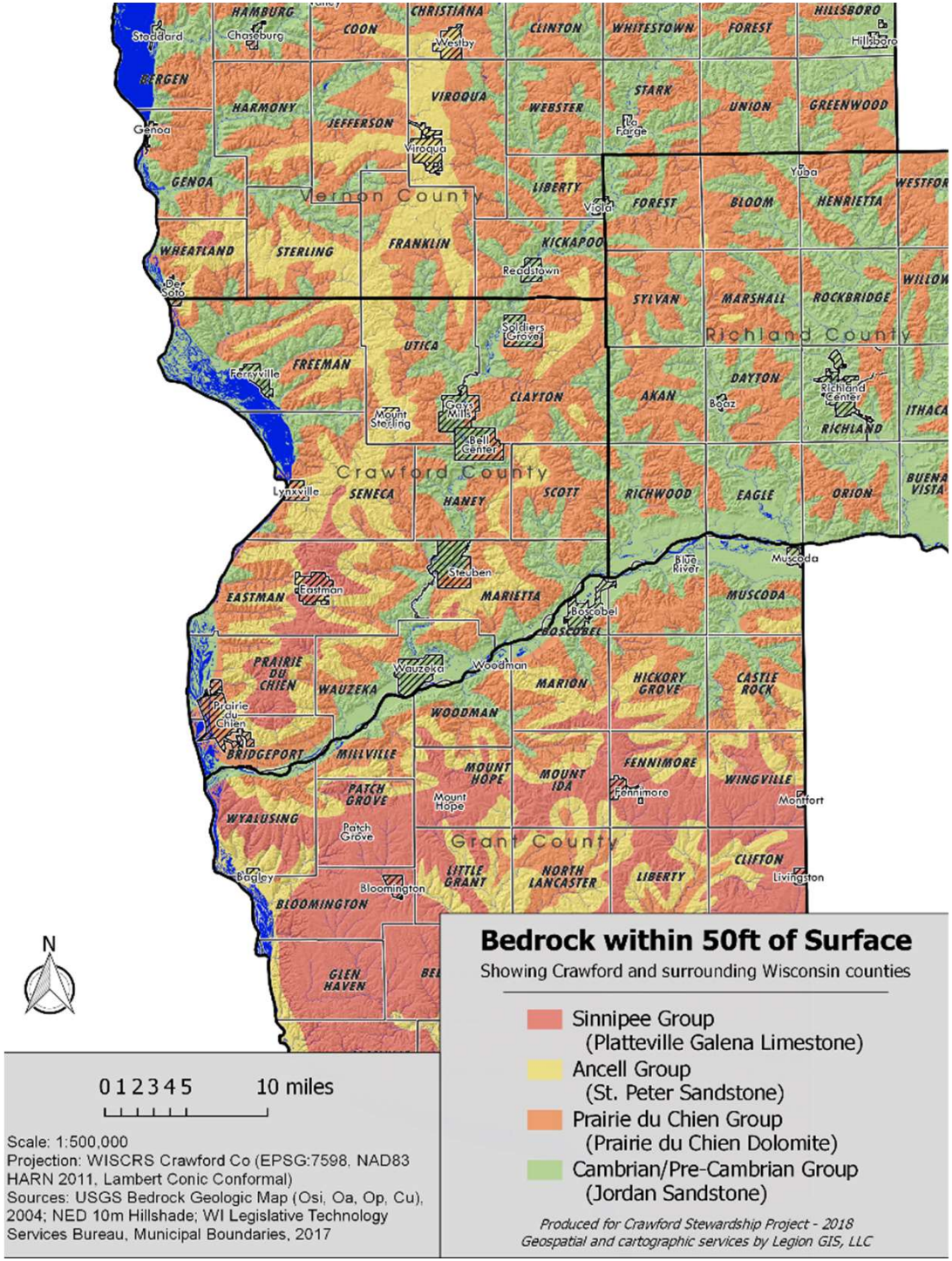
- mv, metavolcanic rocks
- gn, granite, gneiss and amphibolite

MILES
0 30 60

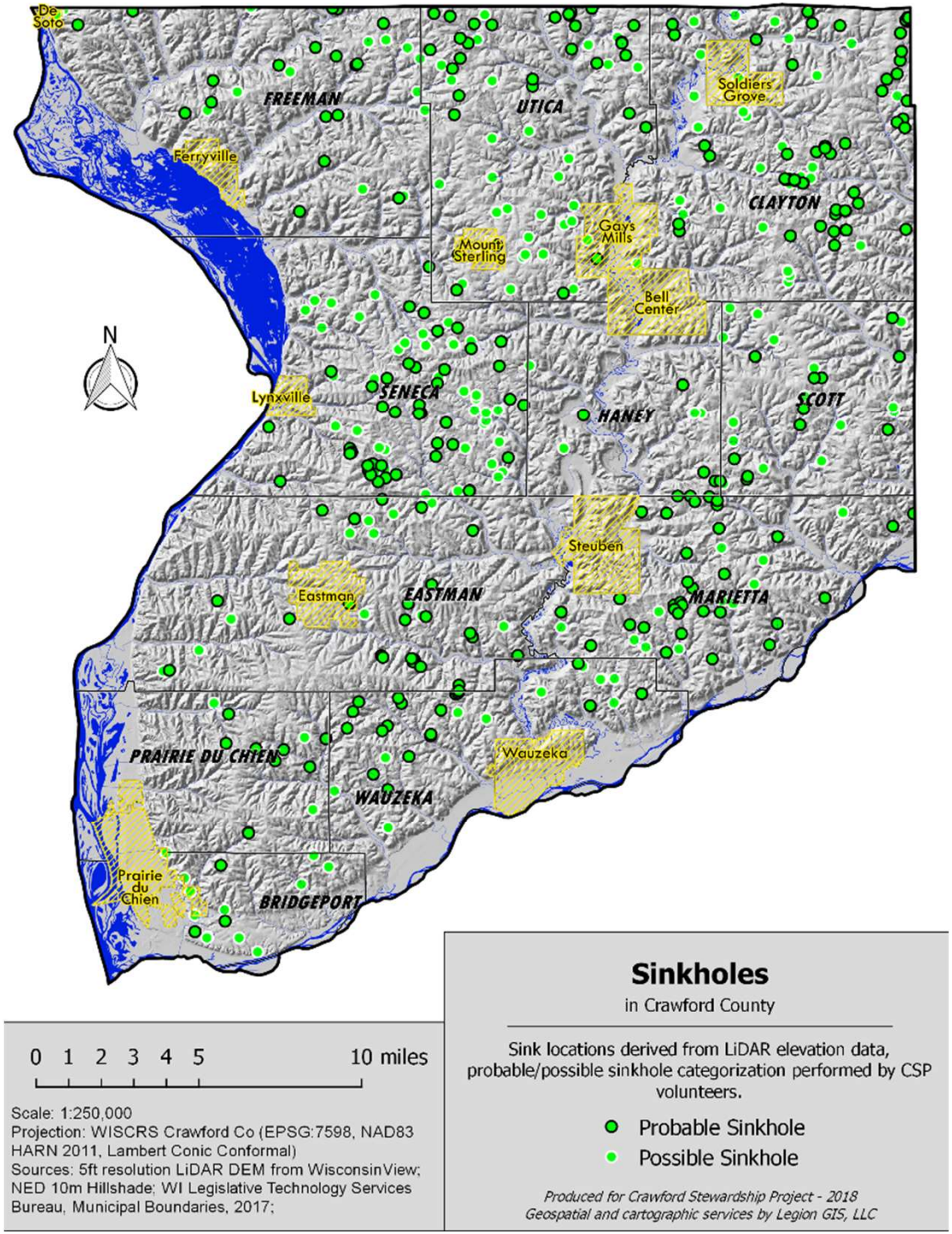
0 50 100
KM.

Vertical scale exaggerated 50X
Horizontal scale is same as map.

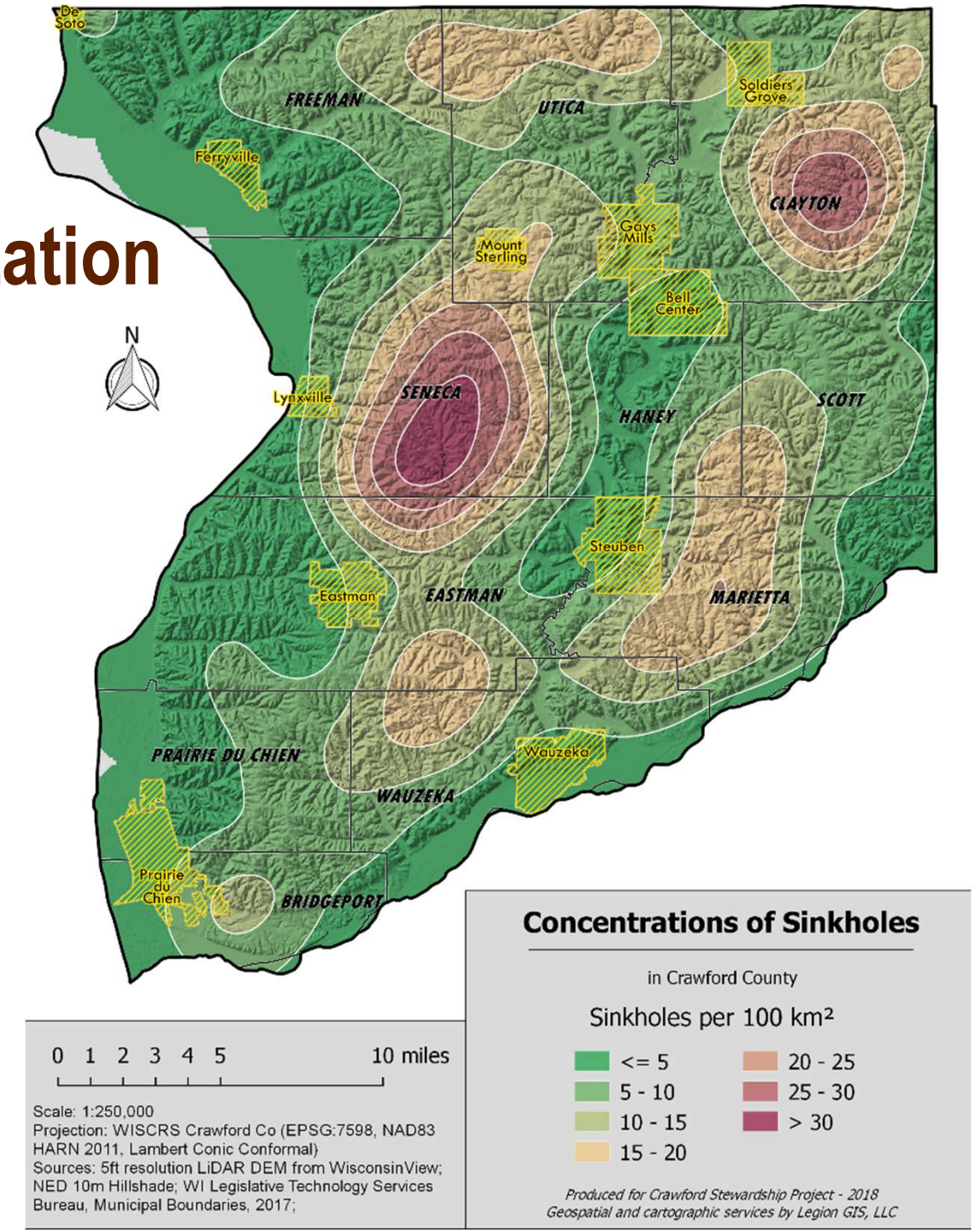
Bedrock Layers



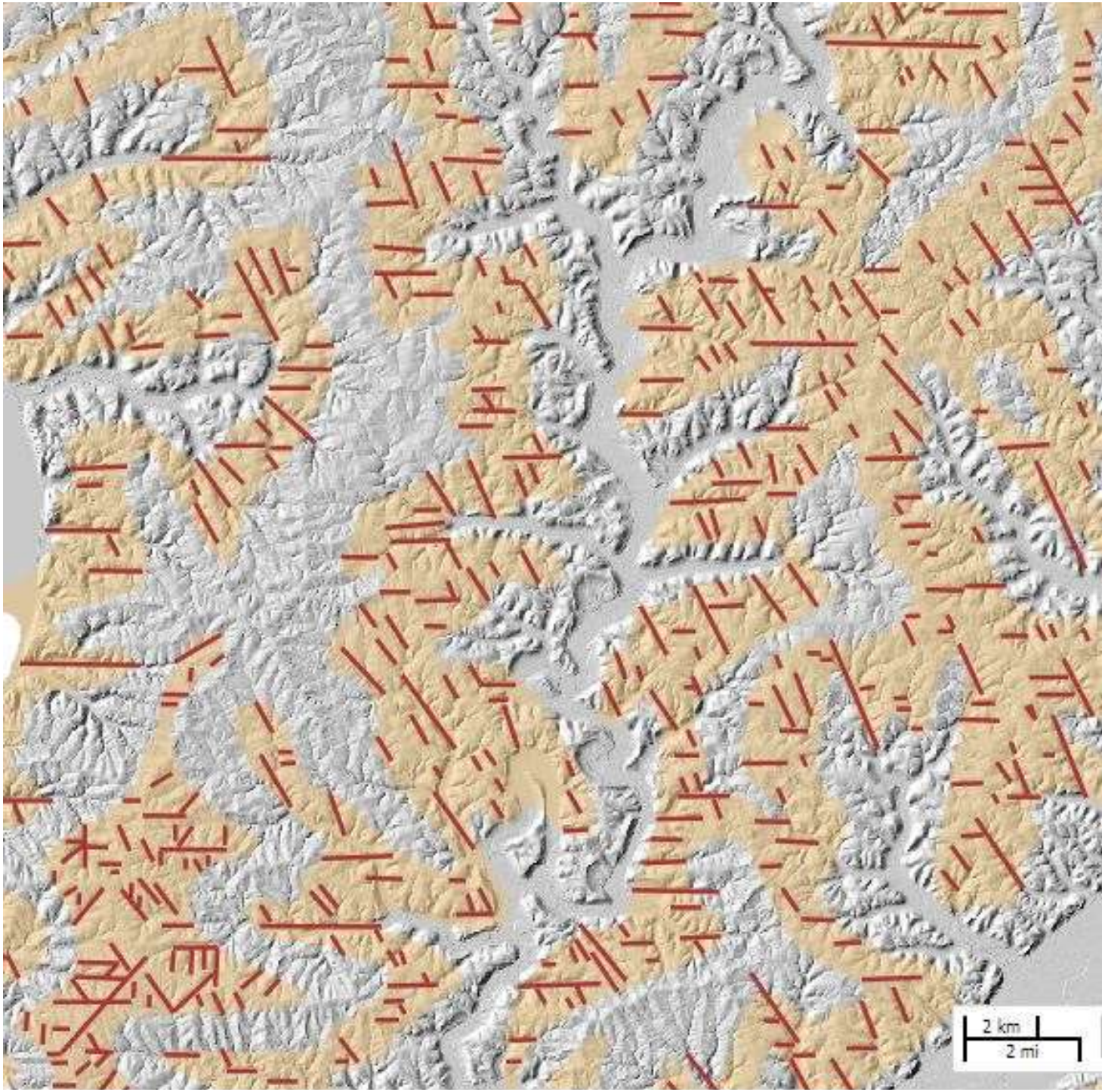
Karst Feature Mapping



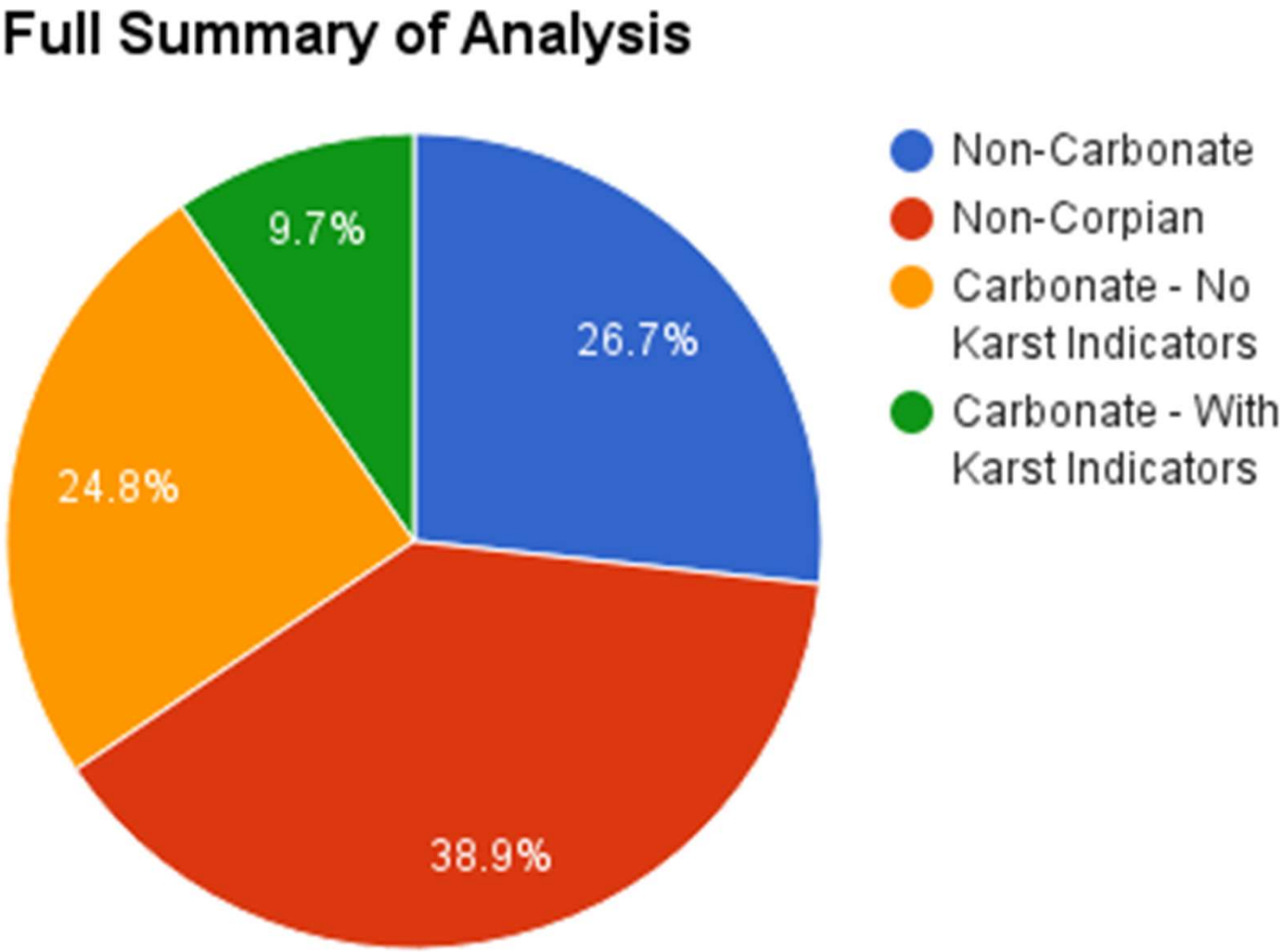
Data Generalization



Karst Fracture Patterns

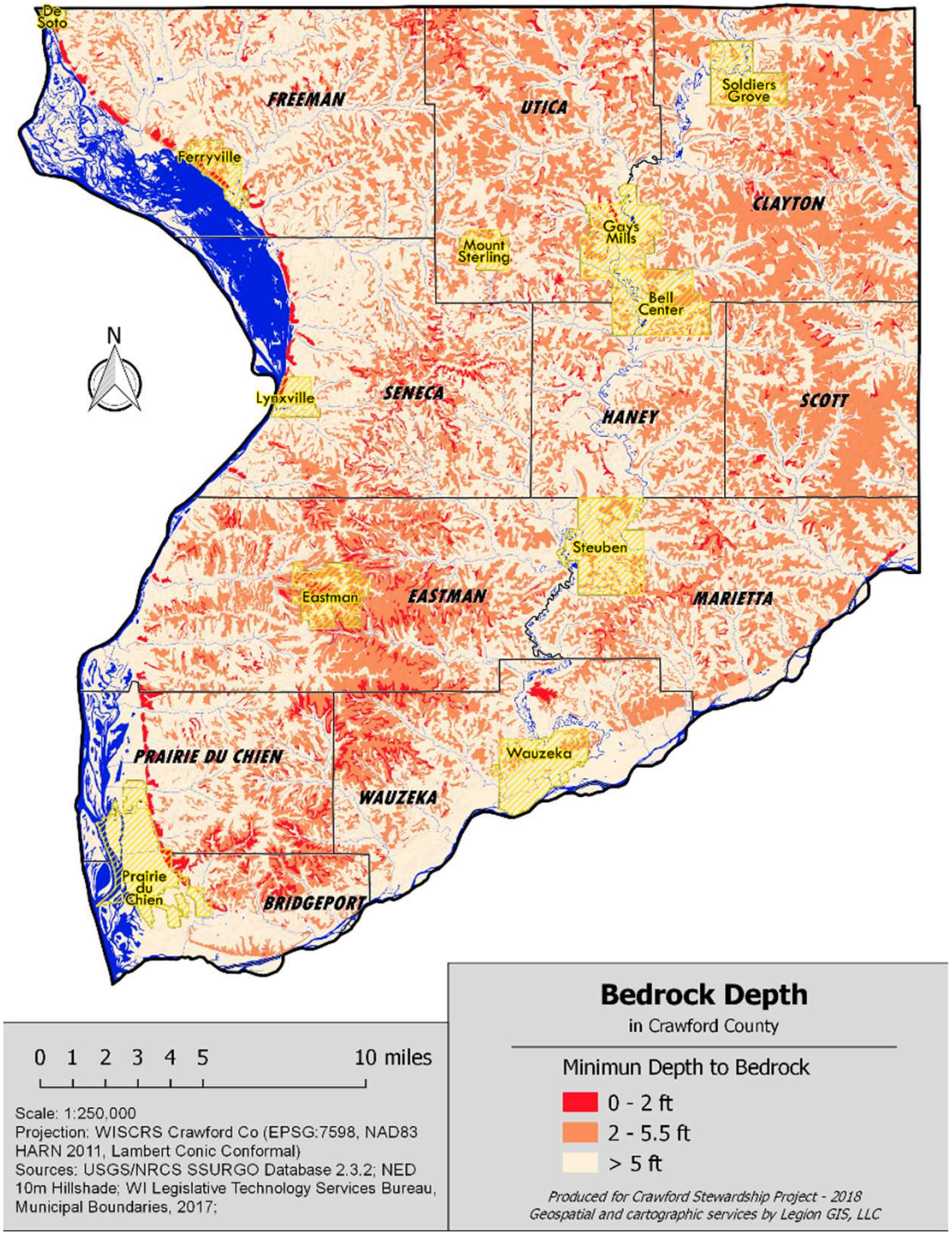


Well Construction Report Analysis

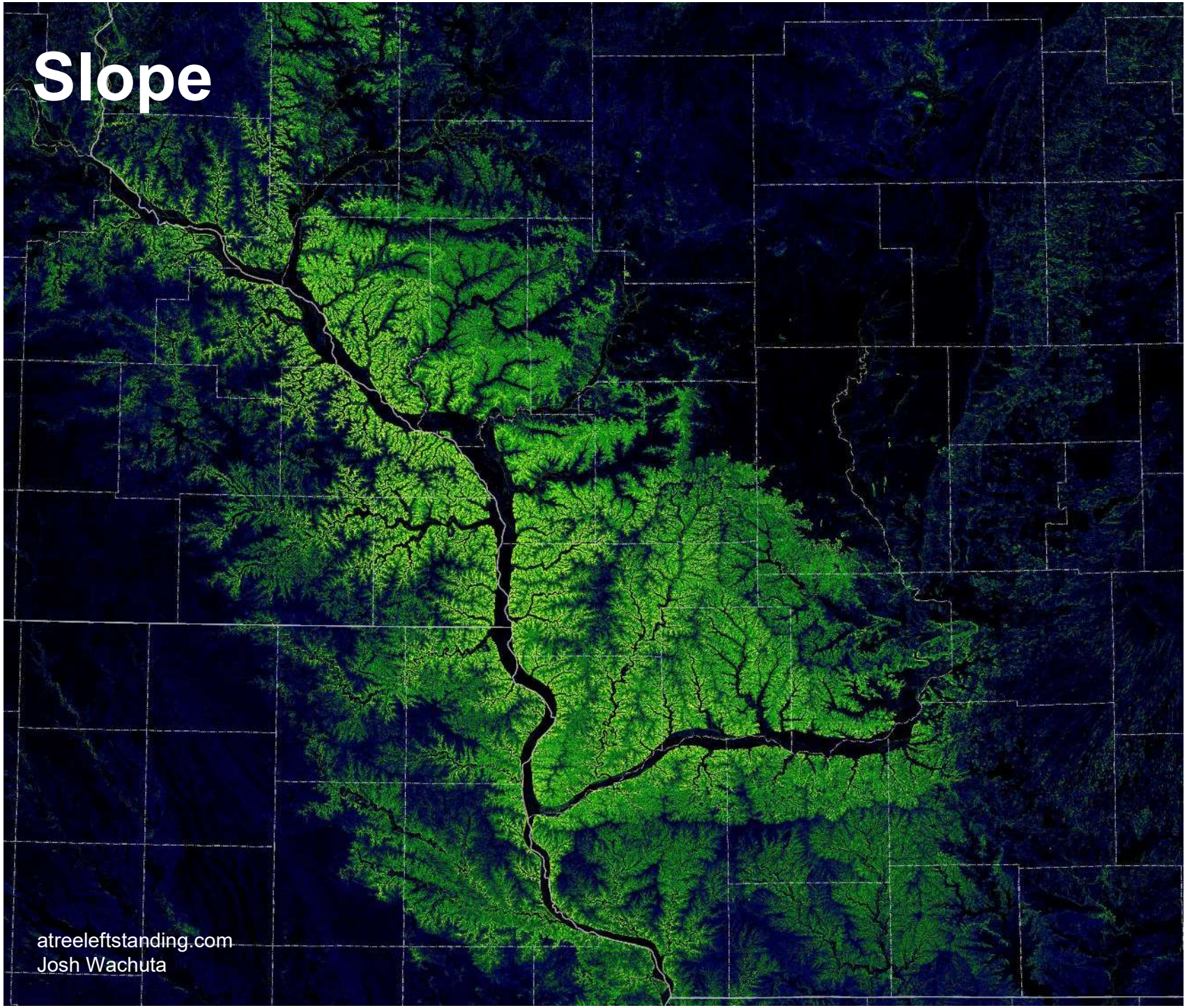


28% of wells drilled through *any* amount of carbonate bedrock indicate karst features!

Shallow Soils

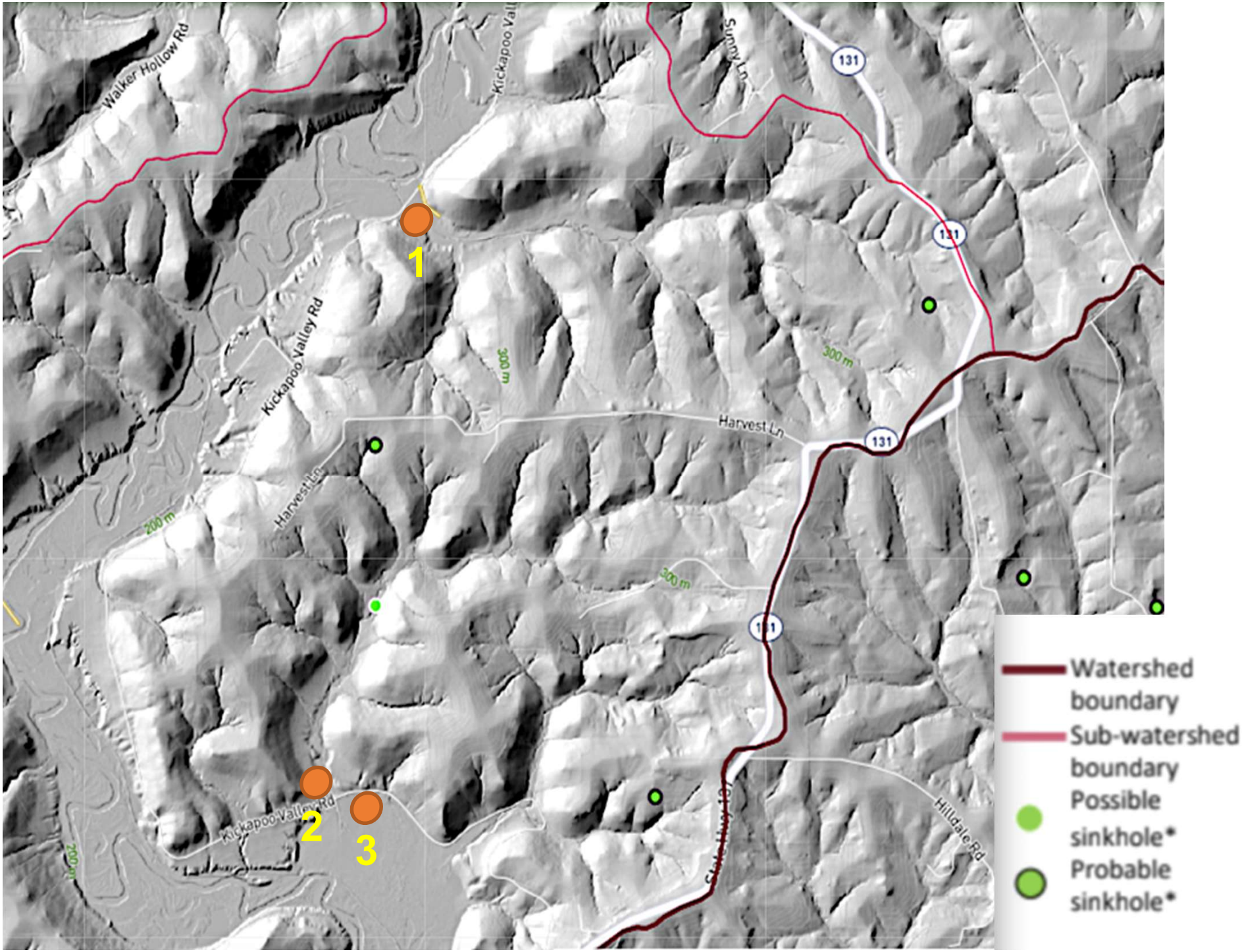


Slope



atreeleftstanding.com
Josh Wachuta

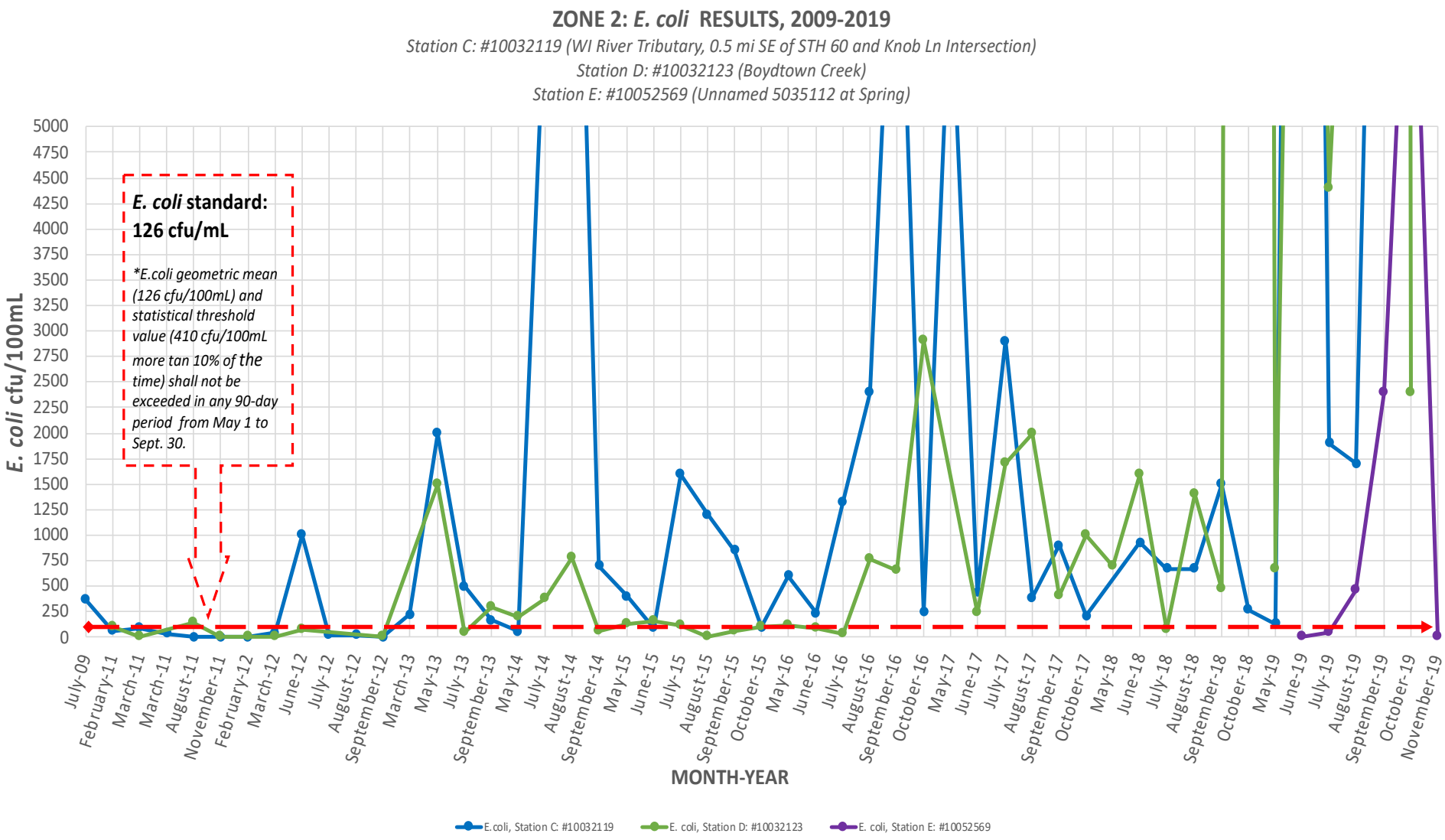
So…
what is the connection with Water Quality Monitoring?


Walker Hollow Rd
Kickapoo Valley Rd
Harvest Ln
Sunny Ln
Hildale Rd
131
300 m
200 m
1
2
3
Watershed boundary
Sub-watershed boundary
Possible sinkhole*
Probable sinkhole*

CRAWFORD STEWARDSHIP PROJECT

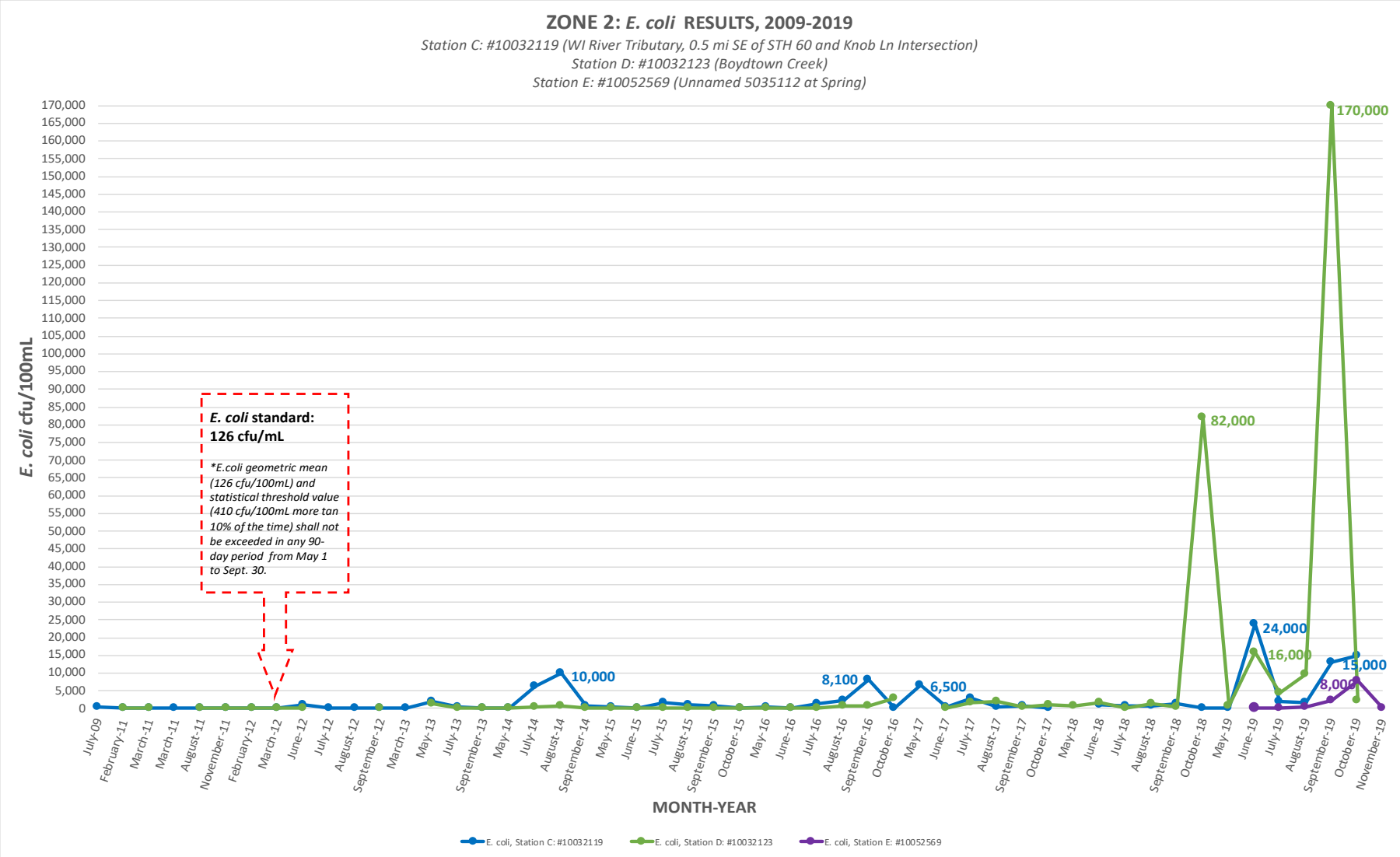
ZONE 2: *E. coli* results from 0 up to 5,000 cfu/100mL 2009-2019

WQM Program



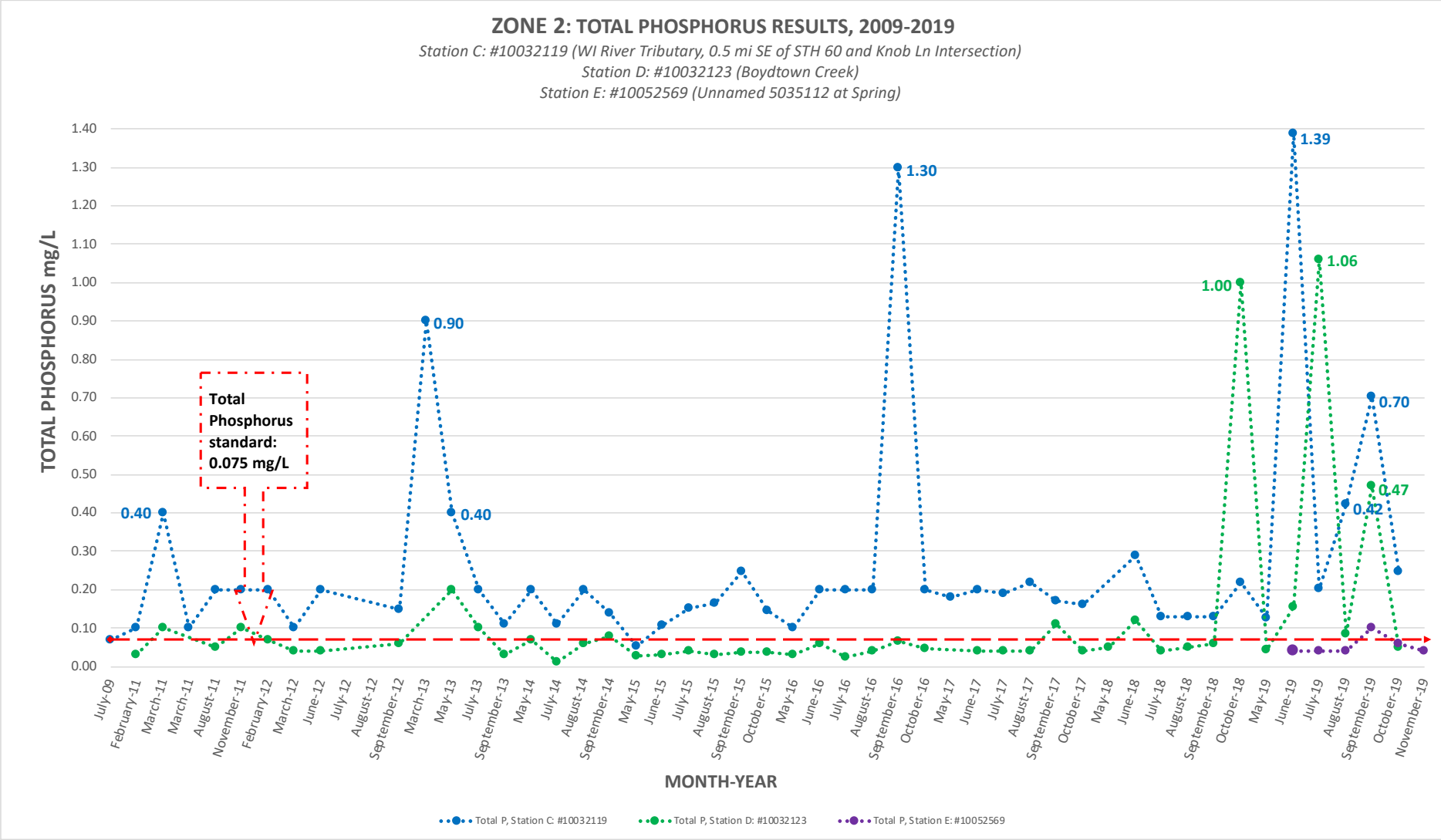
ZONE 2: *E. coli* results from 0 up to 170,000 cfu/100mL 2009-2019

WQM Program

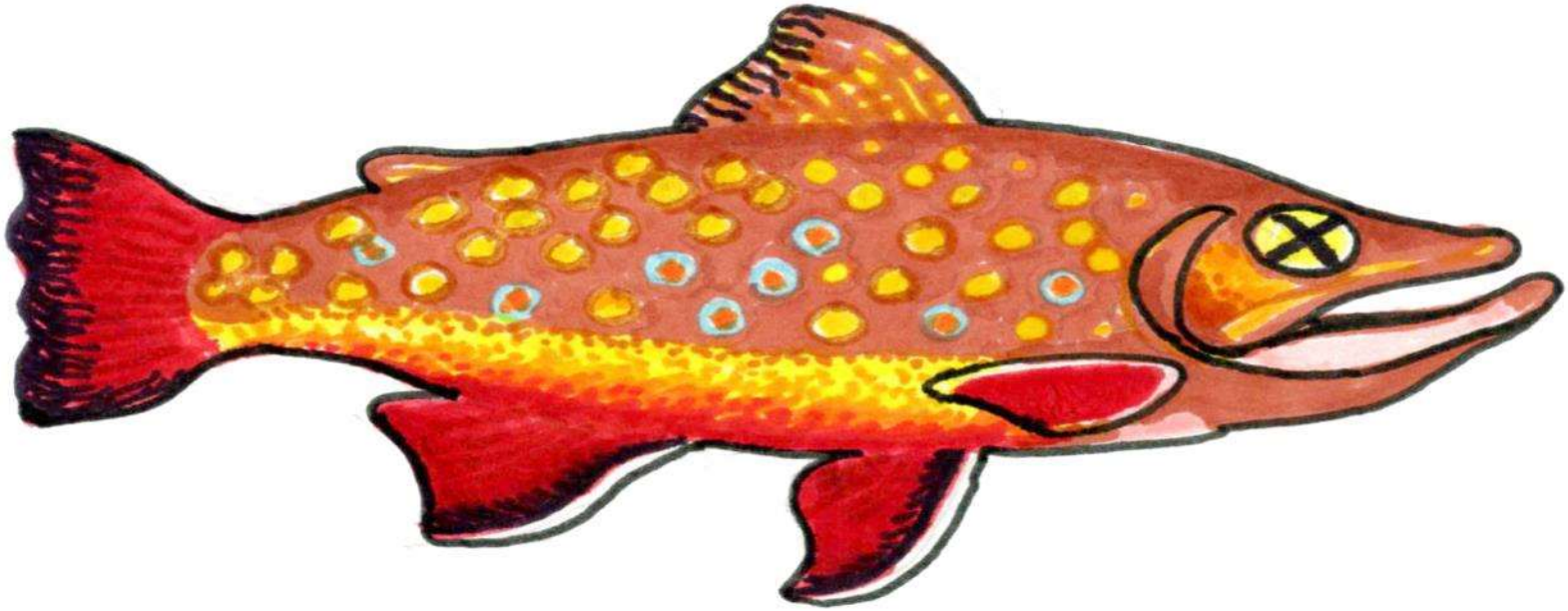


ZONE 2: Total Phosphorus results, 2009-2019

WQM Program



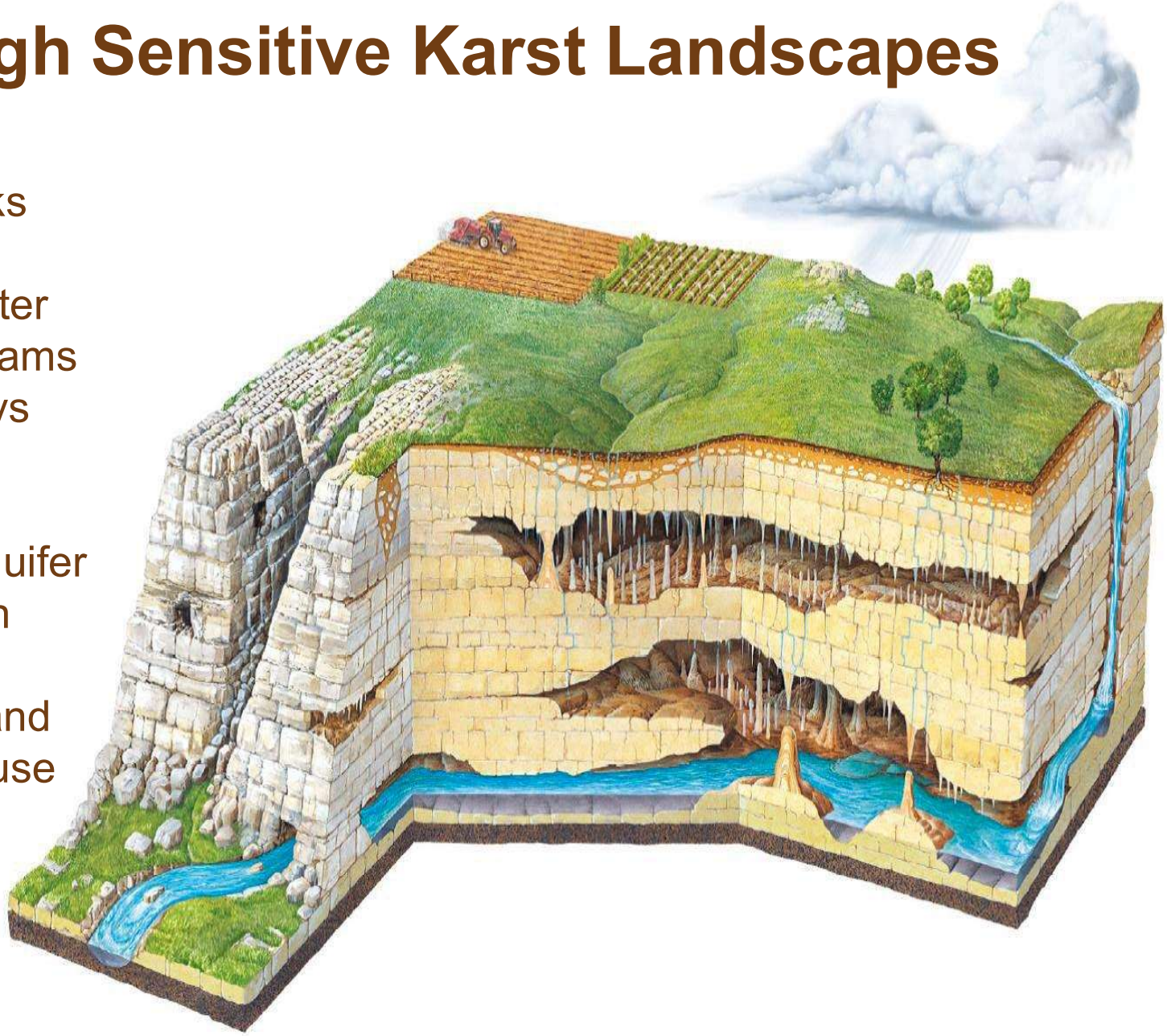
Questions?



Understanding the Connections…

Land use & the Movement of Contaminants through Sensitive Karst Landscapes

- Runoff and infiltration risks
- Impact on water quality in streams and waterways
- Groundwater health and aquifer contamination
- Sustainable and diverse land use



References:

UW Extension & Wi Geological and Natural History Survey

WI Department of Natural Resources

US Department of Agriculture, Natural Resources Conservation Service

US Geological Survey

Legion GIS

Forest Jahnke
Program Coordinator

Omaru Heras
WQM Coordinator

Eli Mandel
Community Engagement Coordinator

43188 Guthrie Rd,
Rolling Ground, WI 54631
Ph.: 608-632-7021
Email:
oheras@crawfordstewardship.org

Thank you!

www.CrawfordStewardship.org