

The Iowa Geological Survey



Ryan J. Clark, P.G.

Bedrock Geologist

Stephanie Tassier-Surine

Surficial Geologist

Upper Wapsipinicon River WMA Meeting

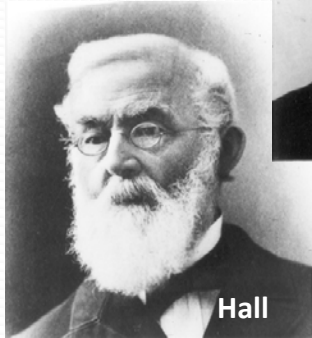
August 22th, 2017

IOWA GEOLOGICAL SURVEY

since 1892



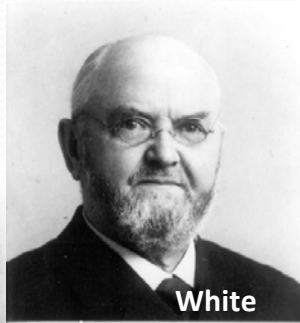
Iowa
1846



Hall



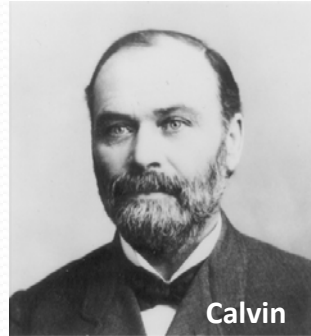
Koch



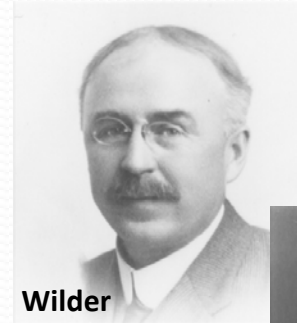
White



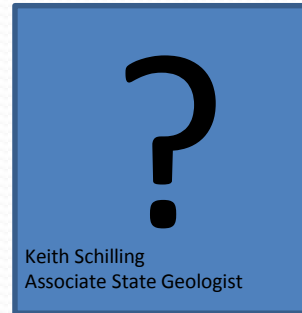
Libra



Calvin



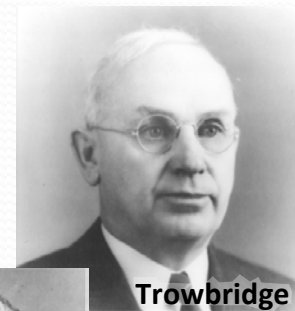
Wilder



Keith Schilling
Associate State Geologist



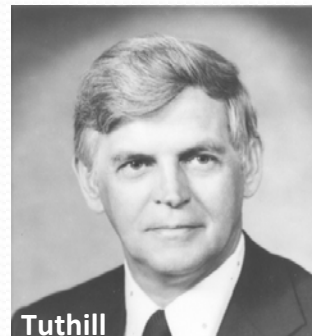
Kay



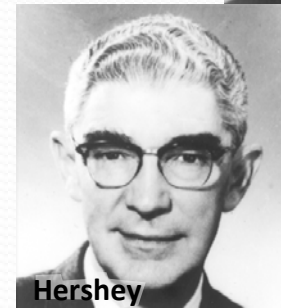
Trowbridge



Grant



Tuthill



Hershey



Iowa Geological
Survey
1892



Mission Statement

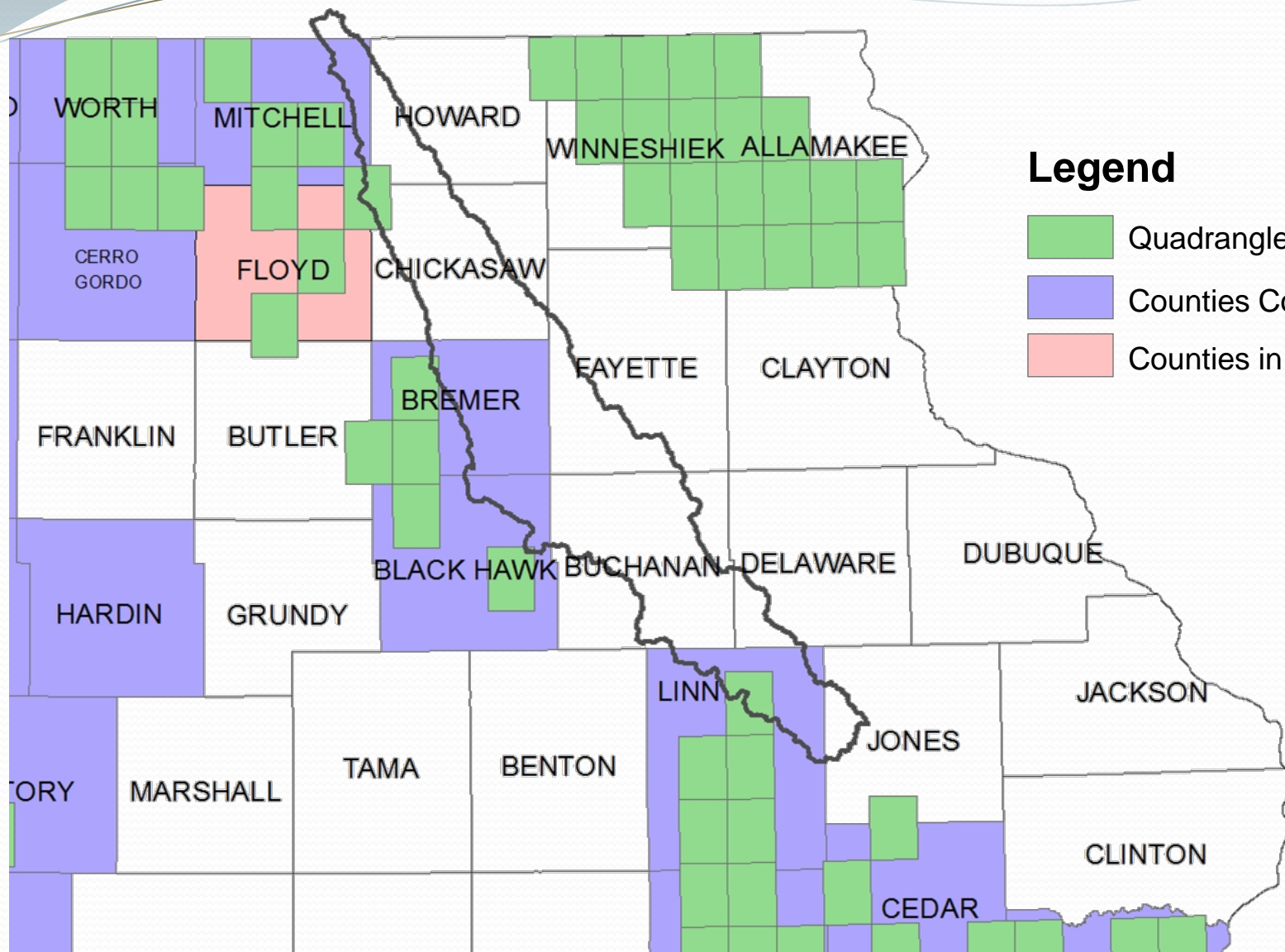
“To collect, reposit, and interpret geologic and hydrogeologic data, to conduct foundational research, and to provide Iowans with the knowledge needed to effectively manage our natural resources for long-term sustainability and economic development.”



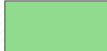


Mapping Programs

- Bedrock maps (units and topography)
- Surficial maps (units and thickness)
- Derivative maps





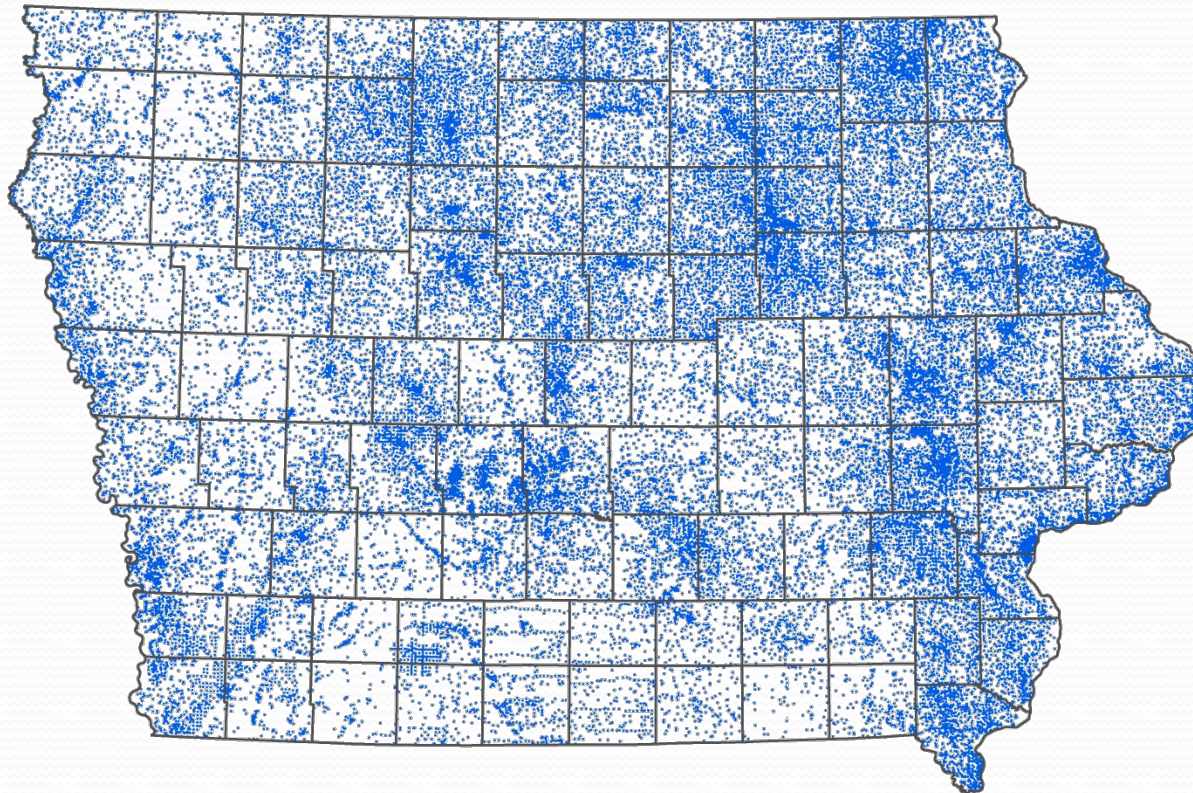
Legend

-  Quadrangles Completed
-  Counties Completed
-  Counties in Progress

A photograph of a large, well-lit warehouse or storage facility. The foreground shows wooden shelving units filled with numerous small, yellow and white bags, likely containing seeds or small plants. The background shows a long aisle with more shelving units and a bright light source at the far end.



GEOSAM Data Points



Total Points

- 76,654
- 70,441 wells
- 3,242 miles

Drilling Samples

- 39,086 chips
- 1,914 miles
- 1,740 cores
- 89 miles
- 22,025 striplogs
- 59,156 driller's logs

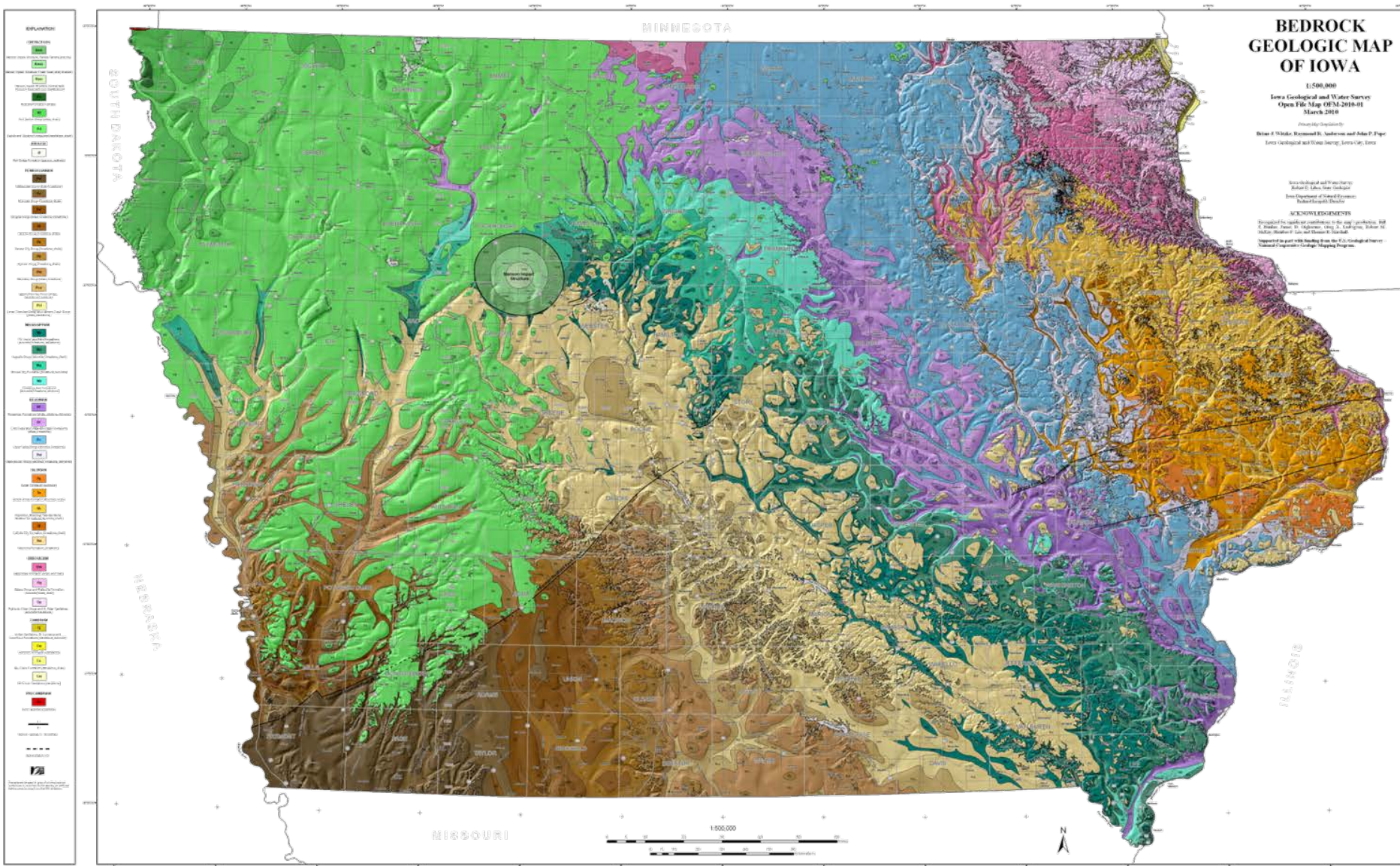
BEDROCK GEOLOGIC MAP OF IOWA

1:500,000
Iowa Geological and Water Survey
Open File Map OFM-2010-01
March 2010

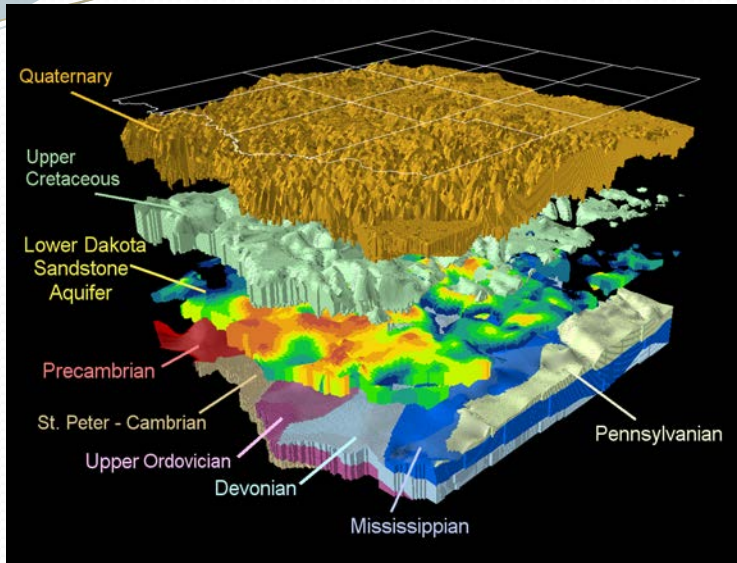
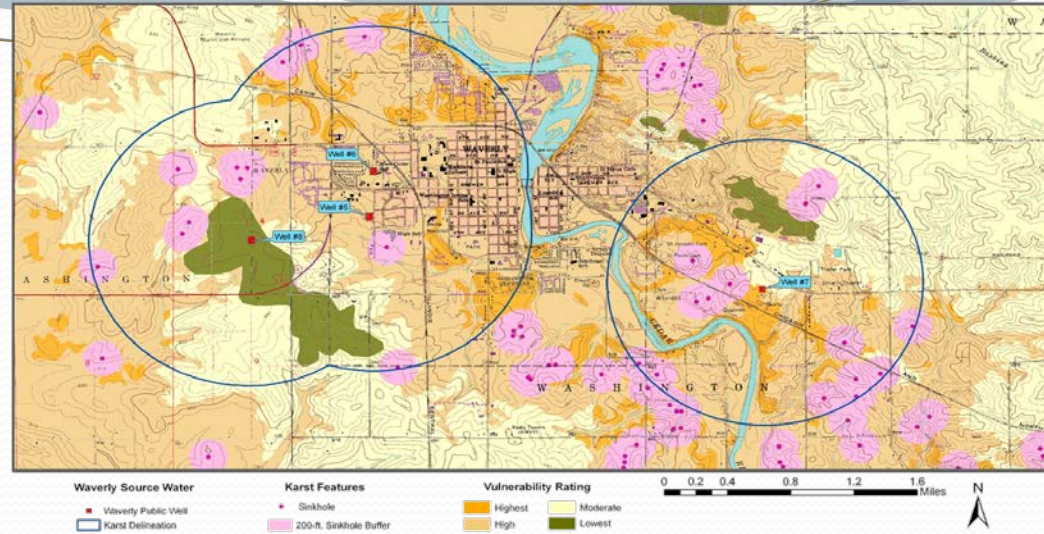
Project Map Compiled by
Brian J. Wicks, Raymond D. Anderson and John P. Piper
Iowa Geological and Water Survey, Iowa City, Iowa

Iowa Geological and Water Survey
Richard D. Lohr, State Geologist
Iowa Department of Natural Resources
Robert K. Smith, Director

ACKNOWLEDGMENTS
We would like to thank the following individuals for their contributions to the map's production: Bill
J. Anderson, James H. Anderson, Amy A. Anderson, Robert D.
Hofler, Matthew P. Lohr and Thomas R. Lohr.
Supported in part by funding from the U.S. Geological Survey
National Cooperative Geologic Mapping Program.



Waverly Source Water Assessment Project Study Area Vulnerability Map



Potential Aggregate Resources Linn County, Iowa

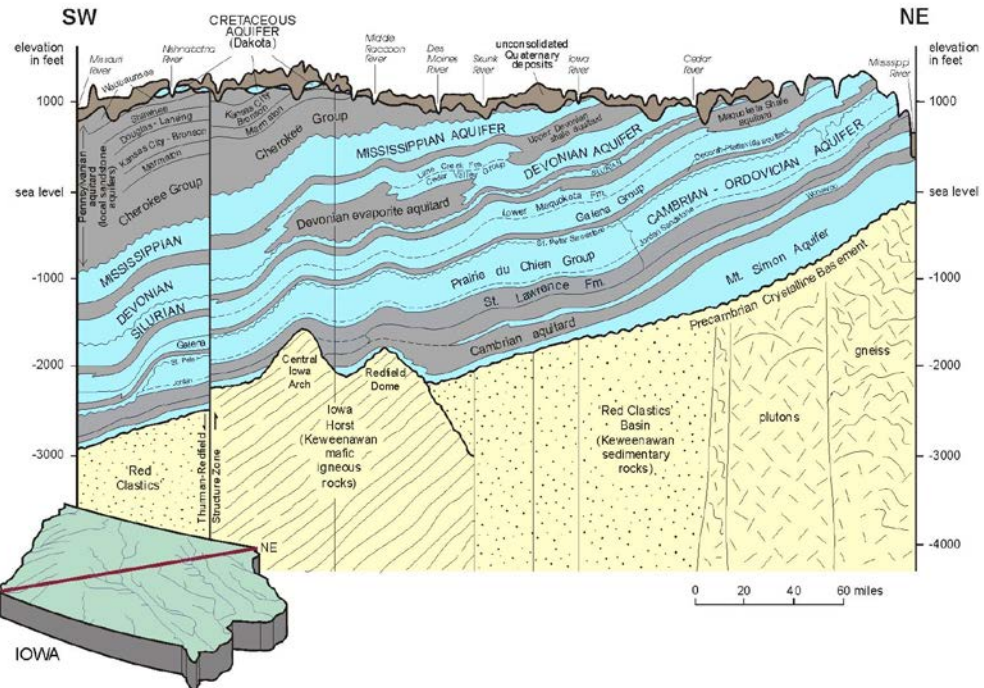
LEGEND

- Potential Surface Aggregate Sources**
- Sand and gravel - 4 meters (13') thick
 - Sand and gravel - 4 meters (13') thick with 2 - 4 meters (7 - 12') of overburden
 - Sand and gravel - 4 meters (13') thick
 - Fine to medium sand - 4 meters (13') thick
- Potential Bedrock Aggregate Sources**
- Limestones and dolomites within 8 meters (25 ft.) of land surface. Silurian and Devonian ages may include thin, interbedded shales. Crushed stone aggregate quality varies with specific rock units, depth and location.
- Permitted Mineral Production Sites**
- Active
 - Sand and Gravel
 - Limestone and Dolomite

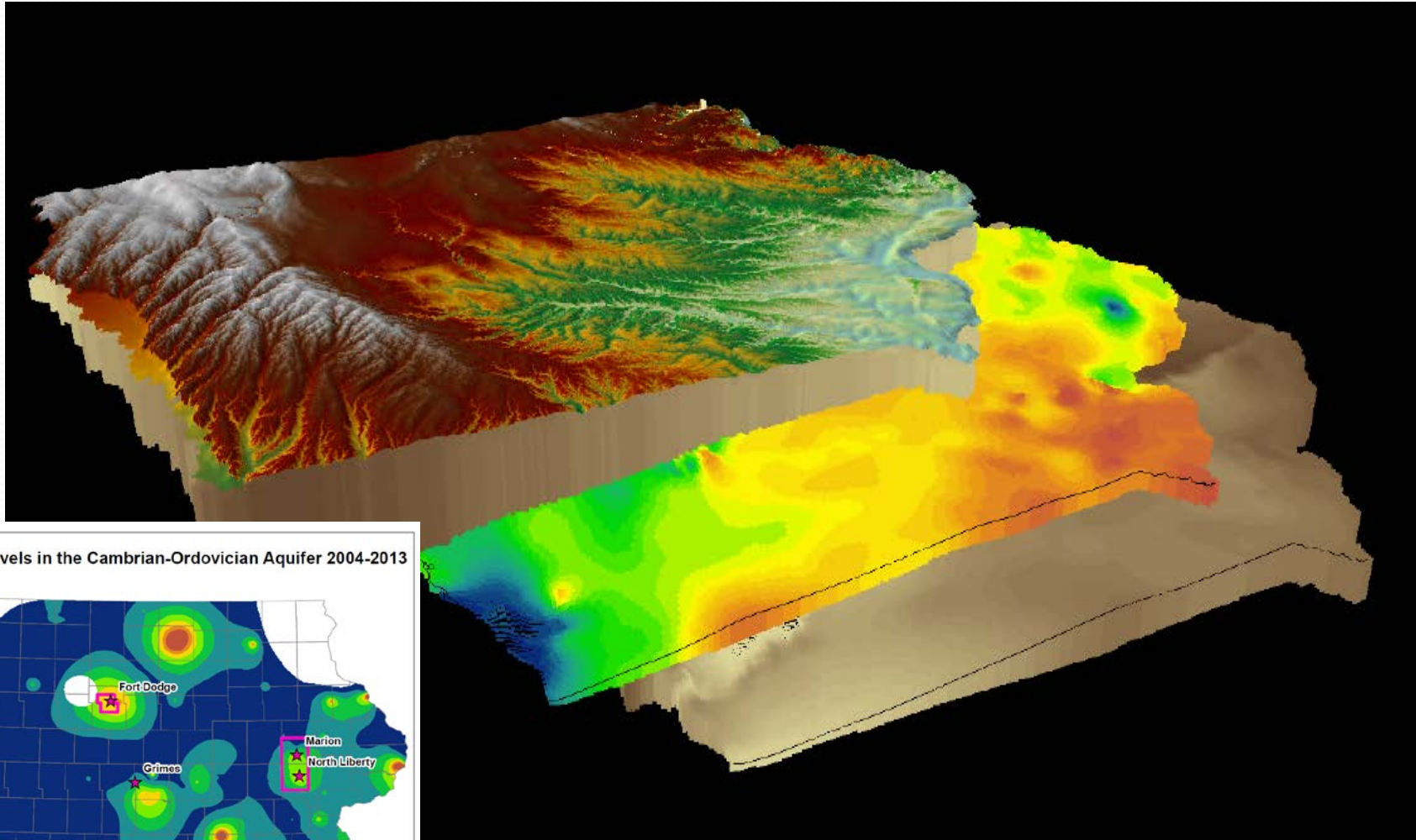
Prepared by the Iowa Department of Natural Resources, Geological Survey Bureau, February 1998.



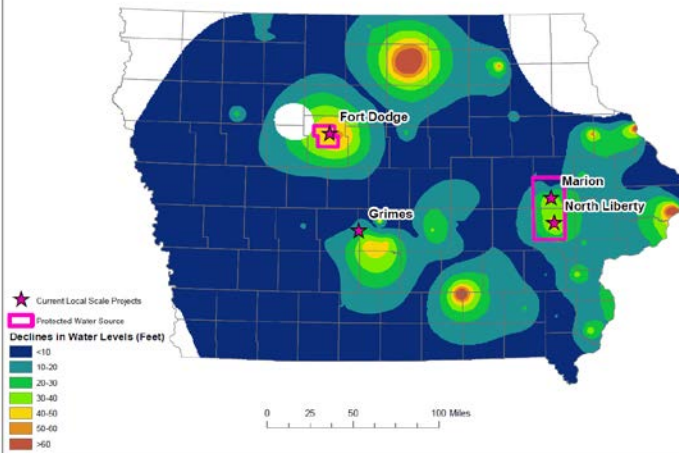
Bedrock Aquifer Systems across Iowa Southwest to Northeast



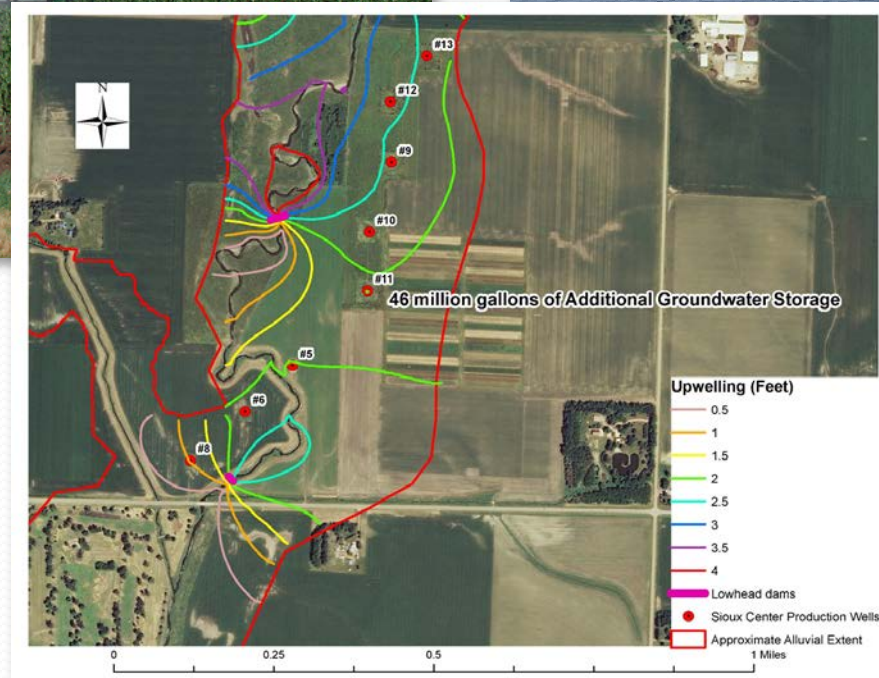
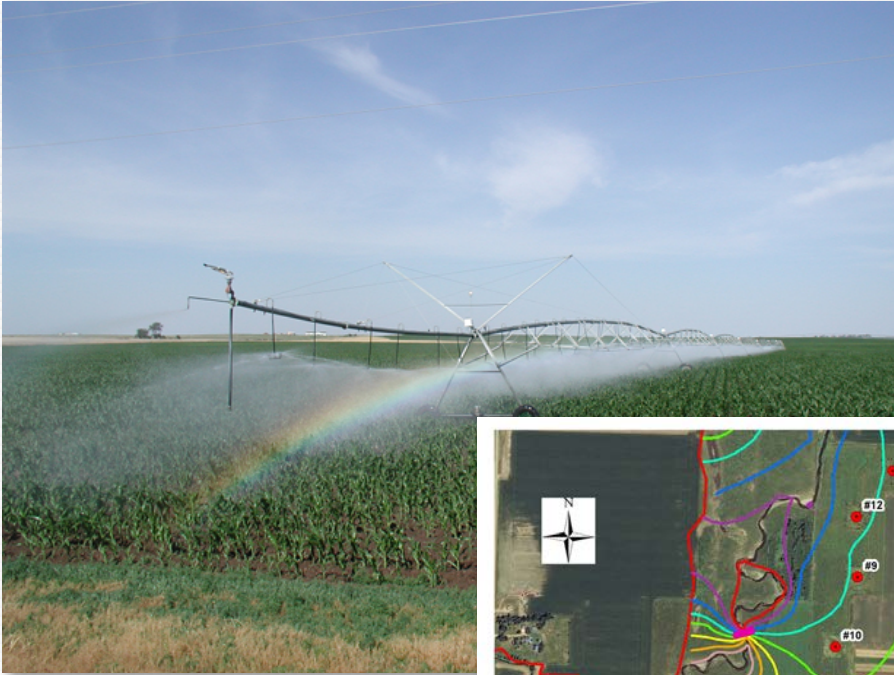
Regional Groundwater Flow Modeling



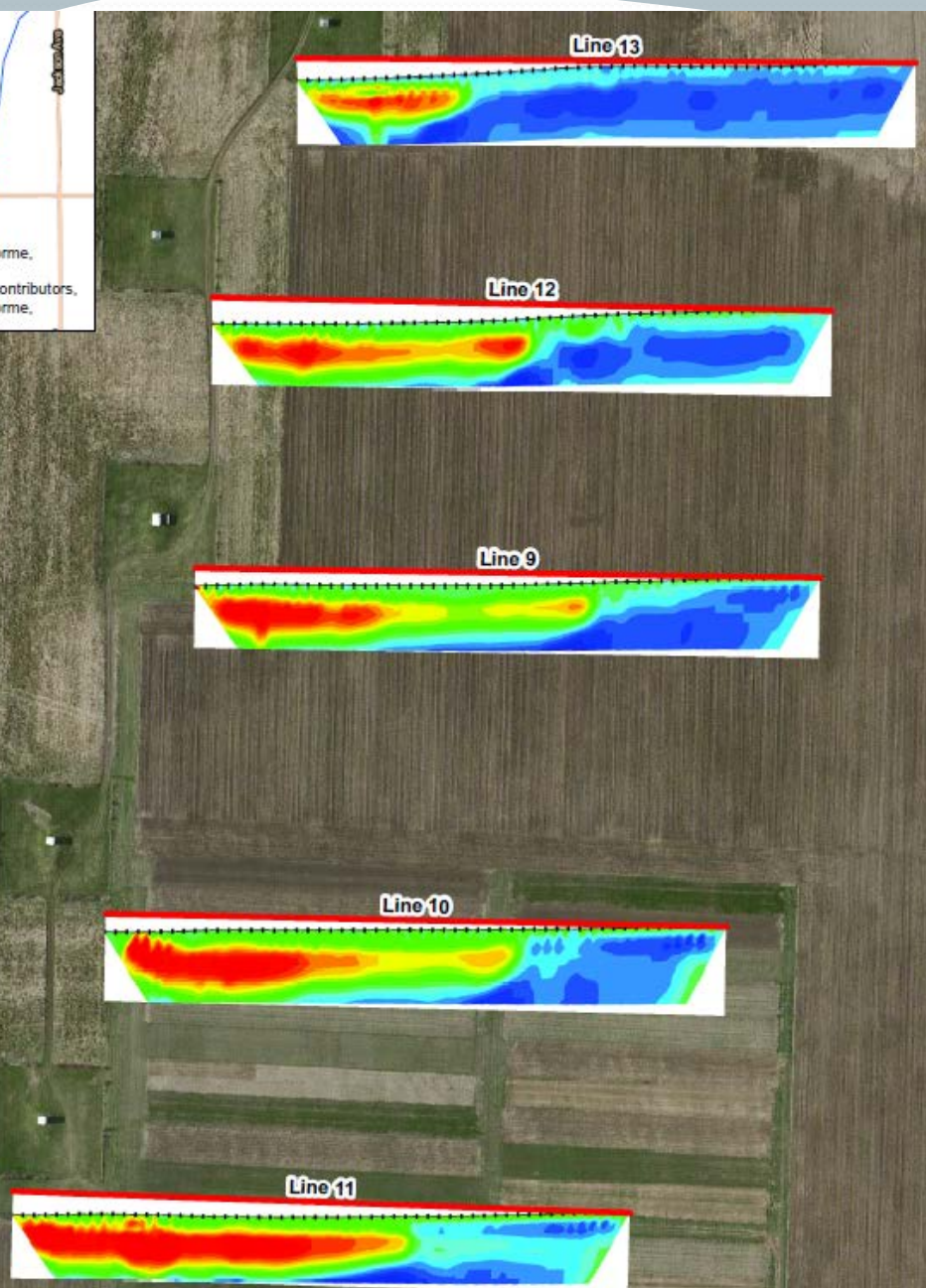
Decline in Water Levels in the Cambrian-Ordovician Aquifer 2004-2013



Drought Assessments & Local Scale Modeling

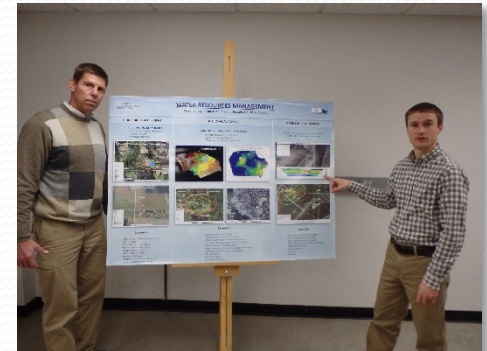
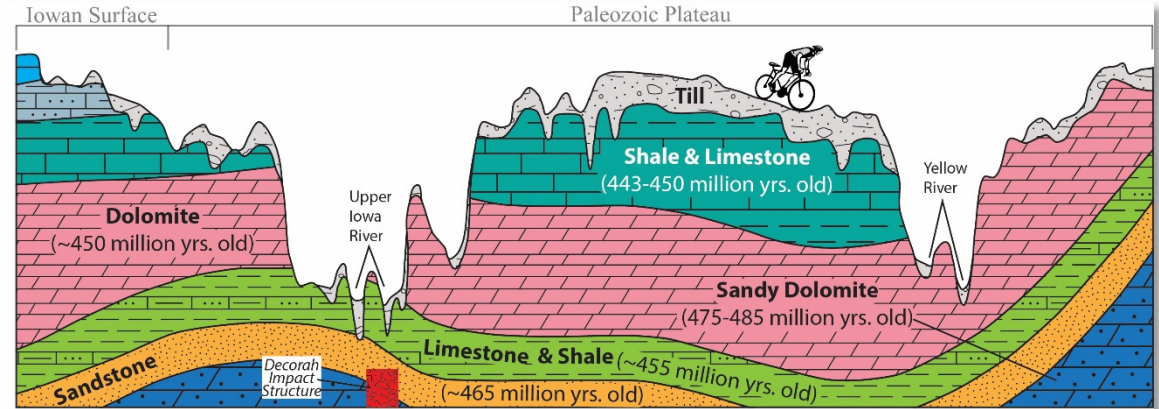


Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, Esri, HERE, DeLorme,



Electrical resistivity field data collection. Meter, switch box, batteries (left), cables, and electrodes (right).

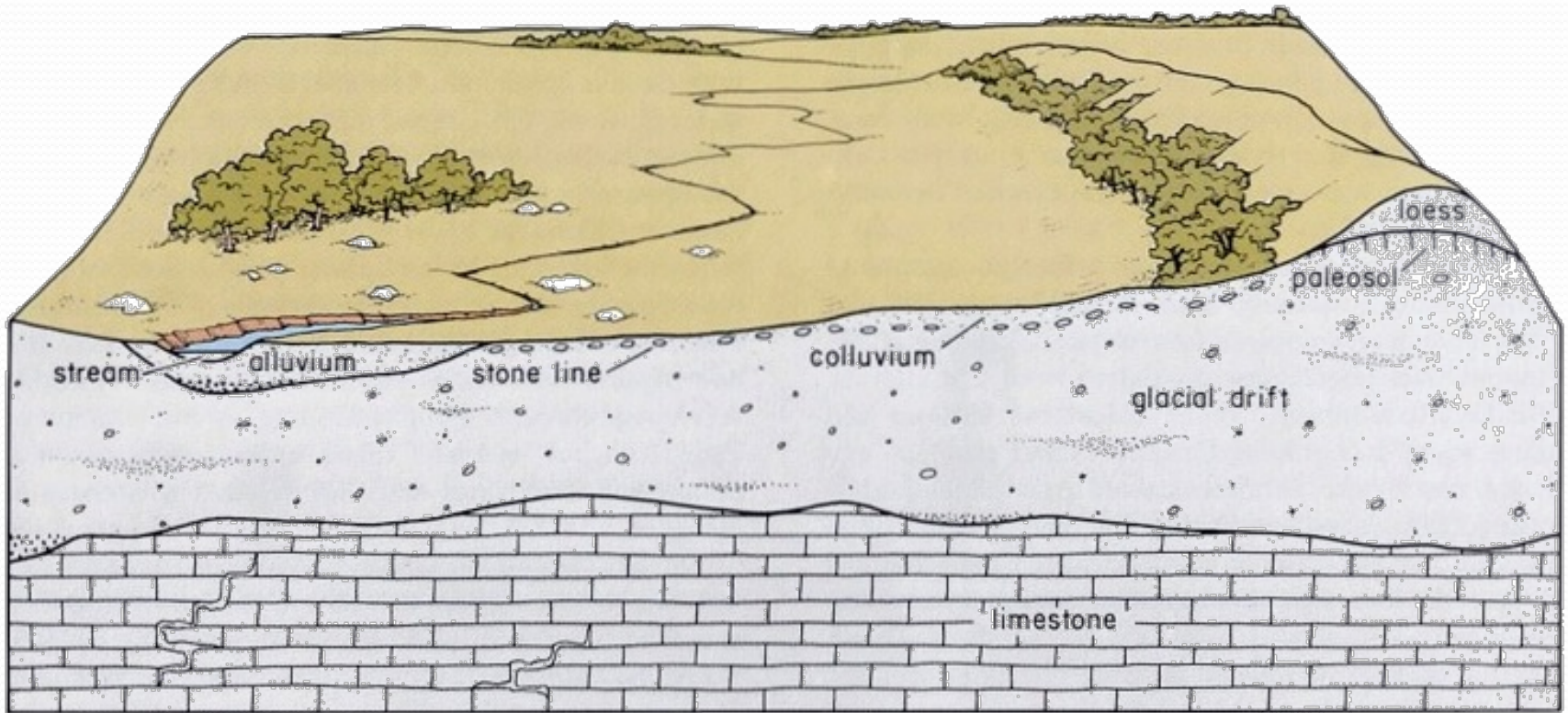
Education & Outreach



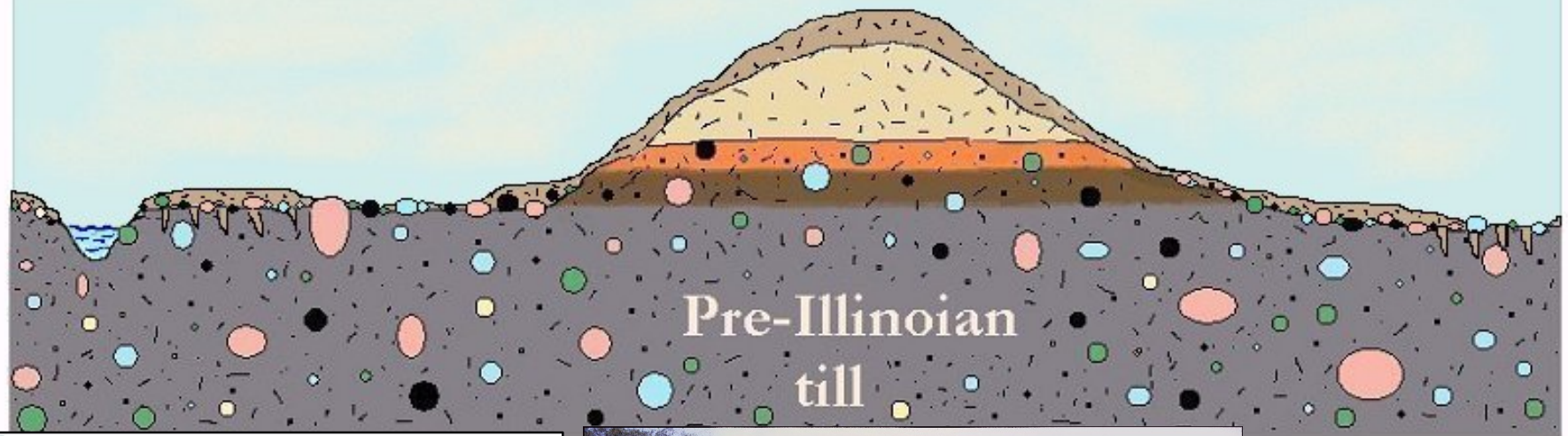
Landform Regions of Iowa



Iowan Surface



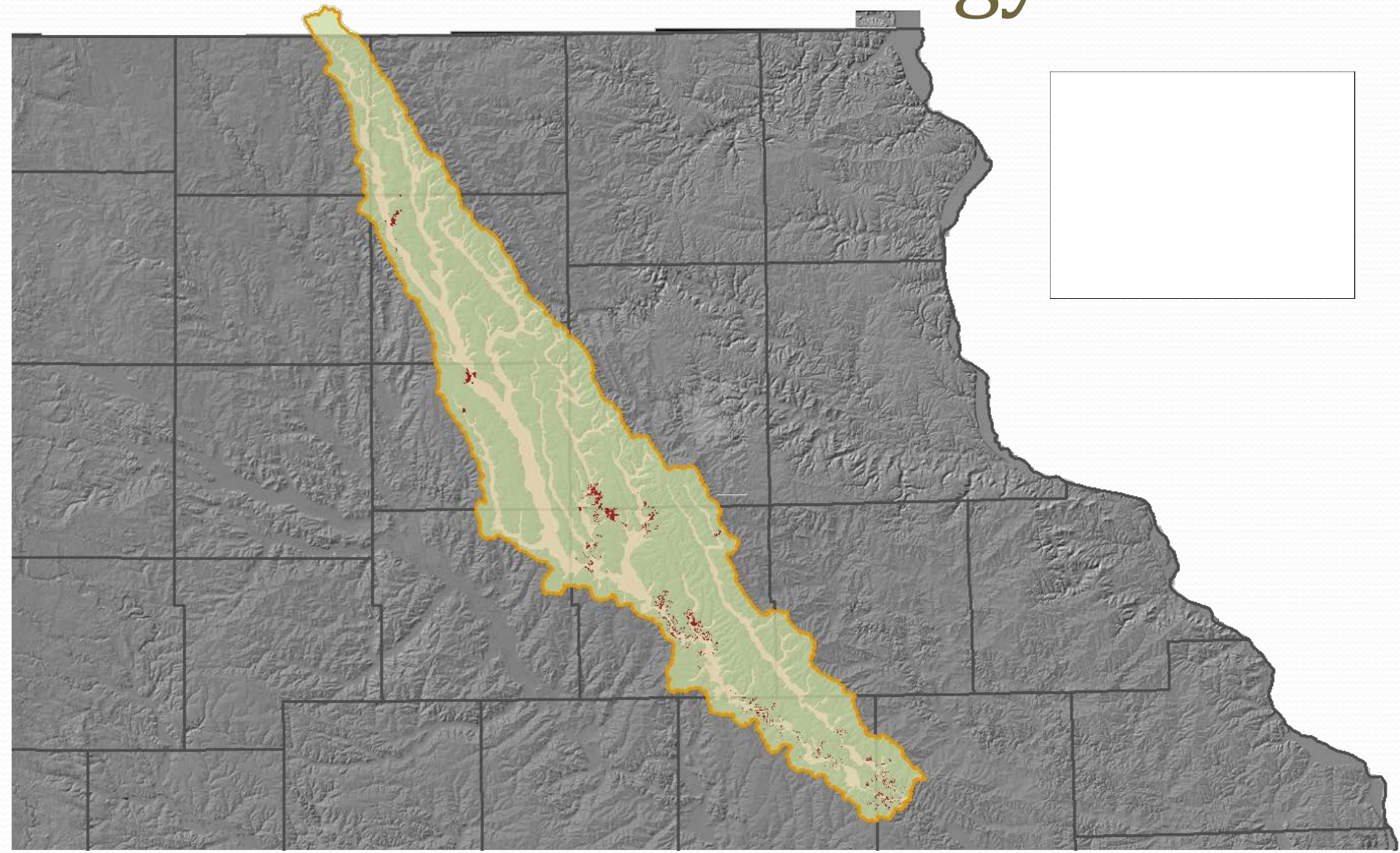
Iowan Surface Erosion



2b



Surficial Geology



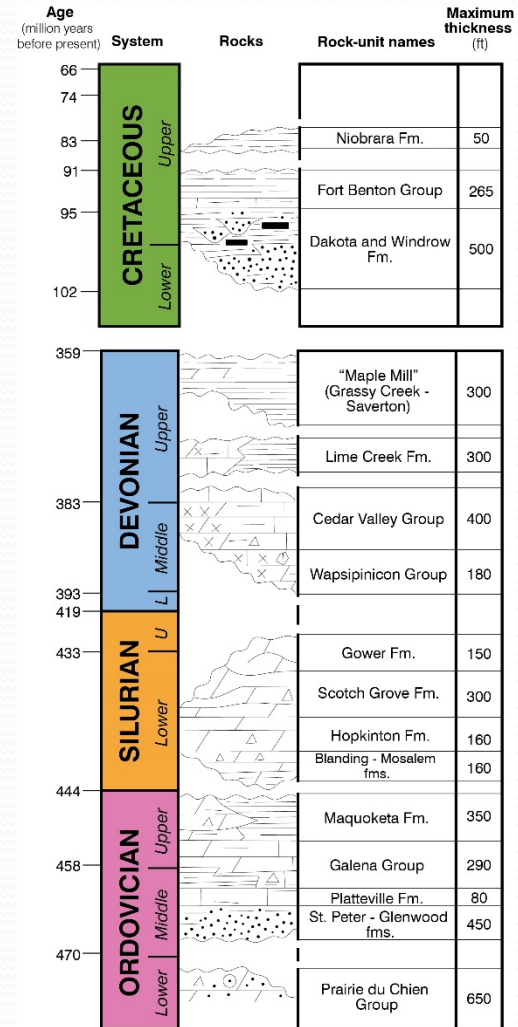
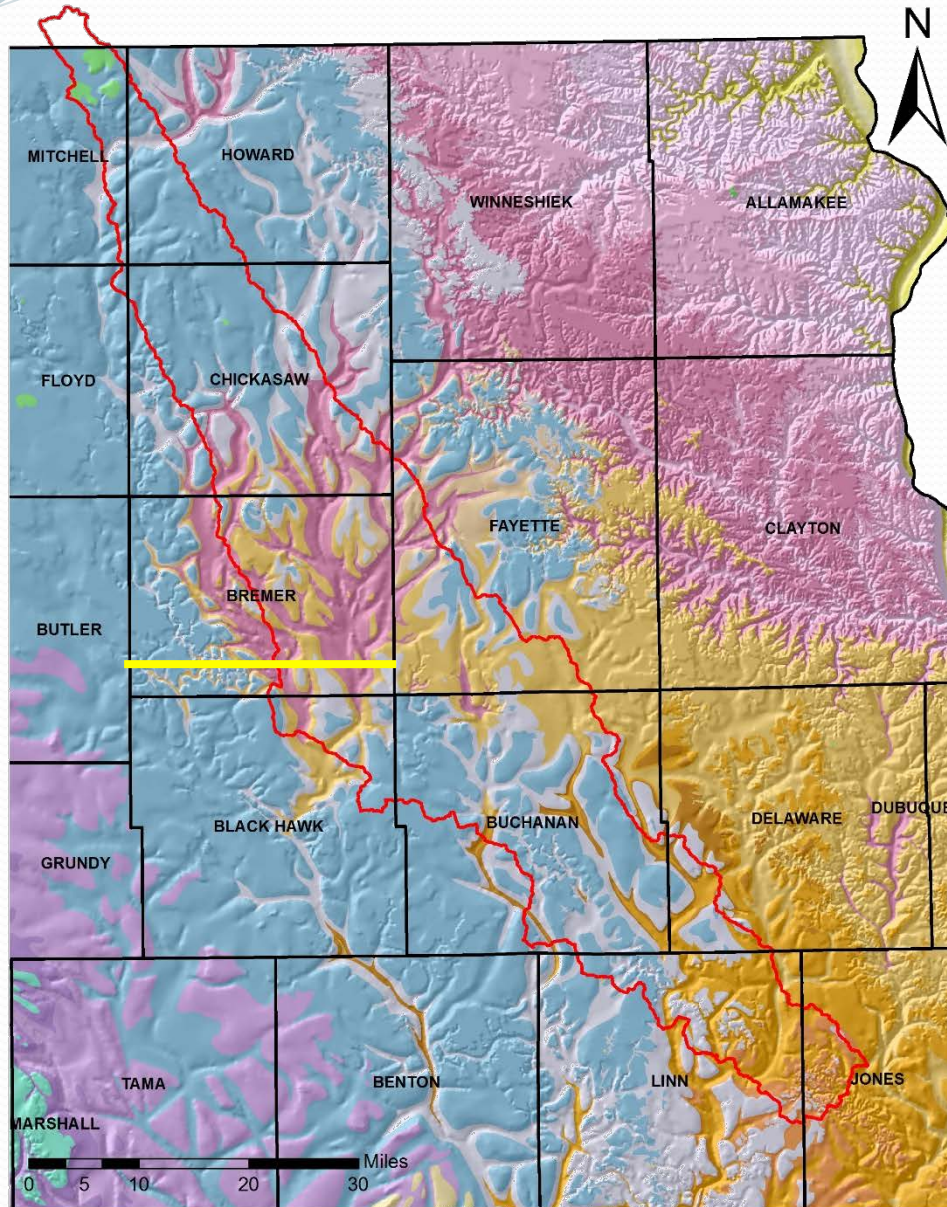


Iowan Surface Materials

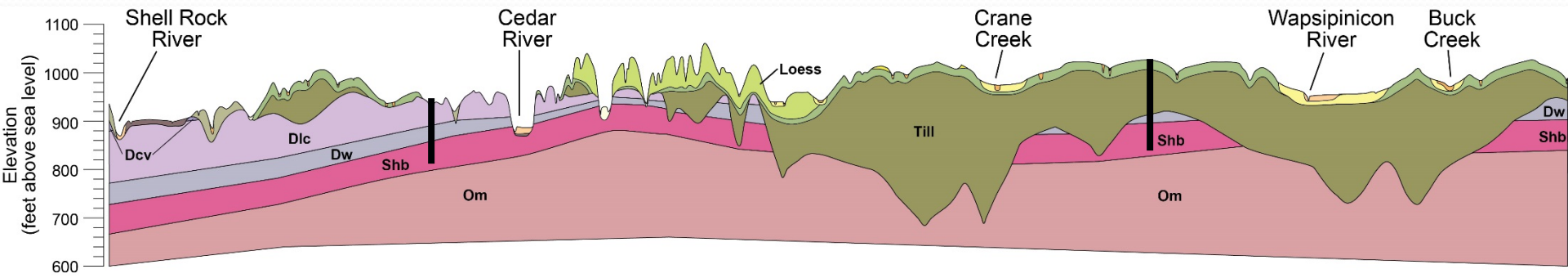


Unoxidized Glacial Till

Bedrock Geology

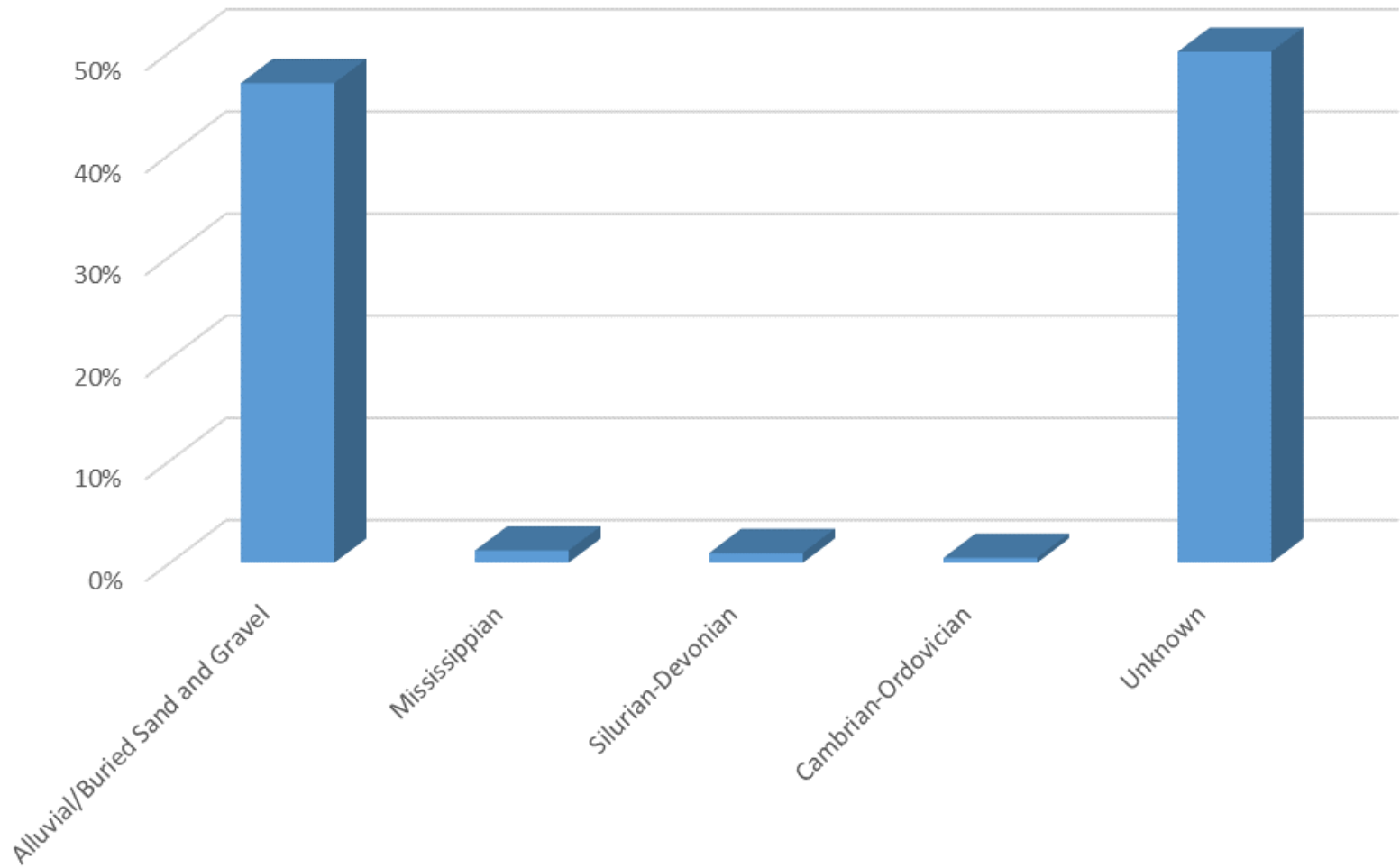


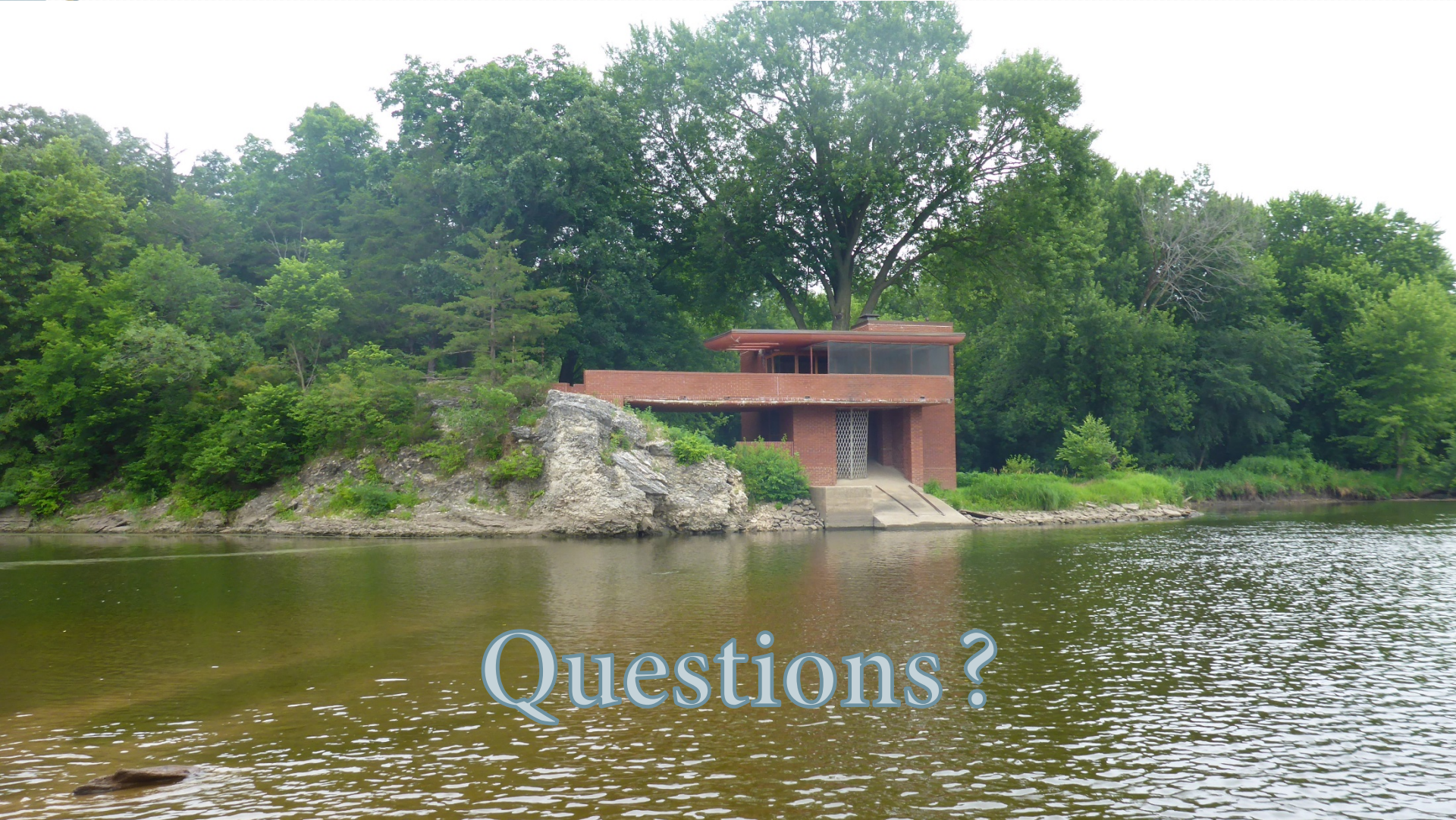
Geologic Cross-Section



- Aquifers
- Aquitards
- Groundwater Vulnerability

Percentage of Wells by Aquifer





Questions?