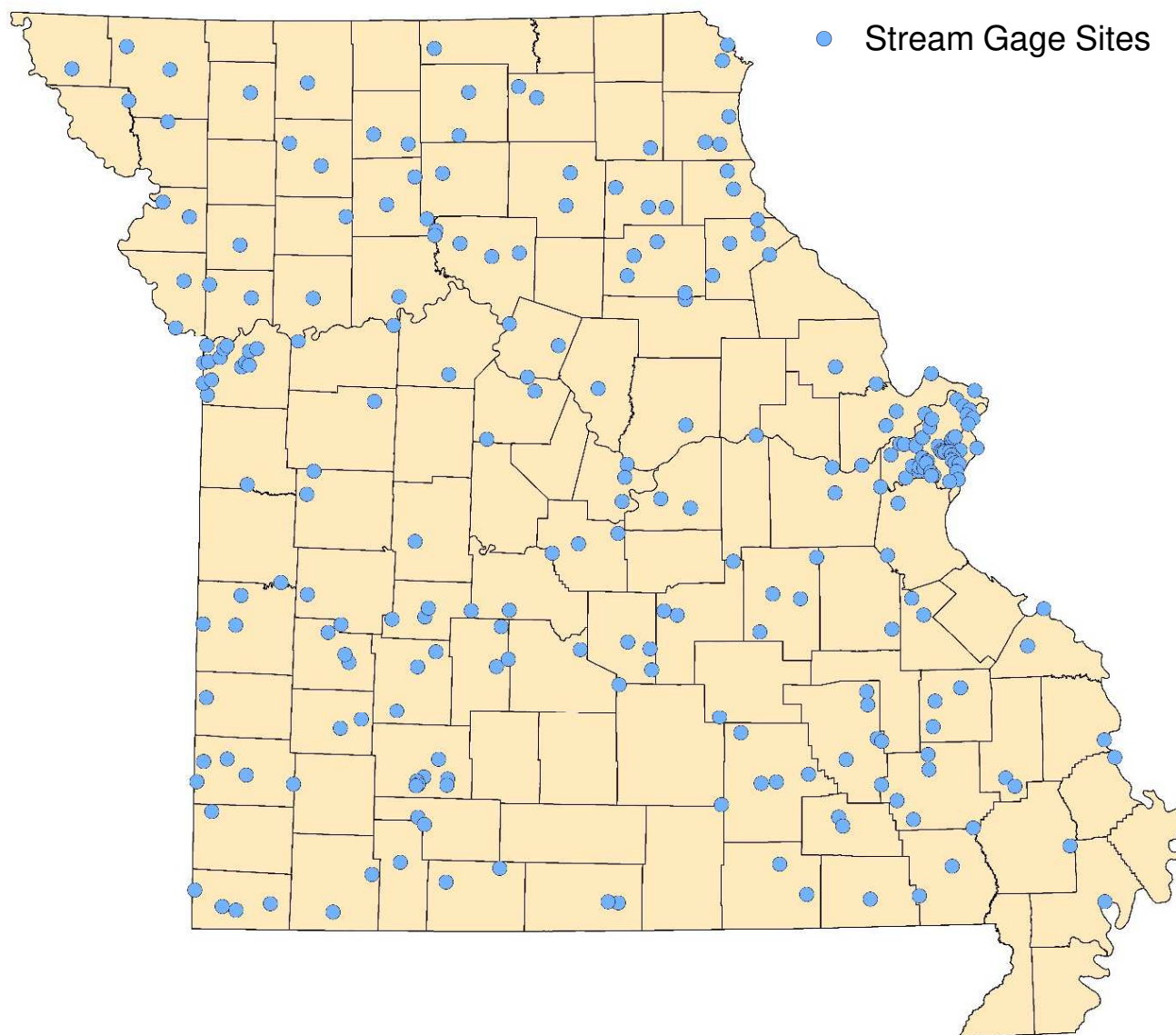


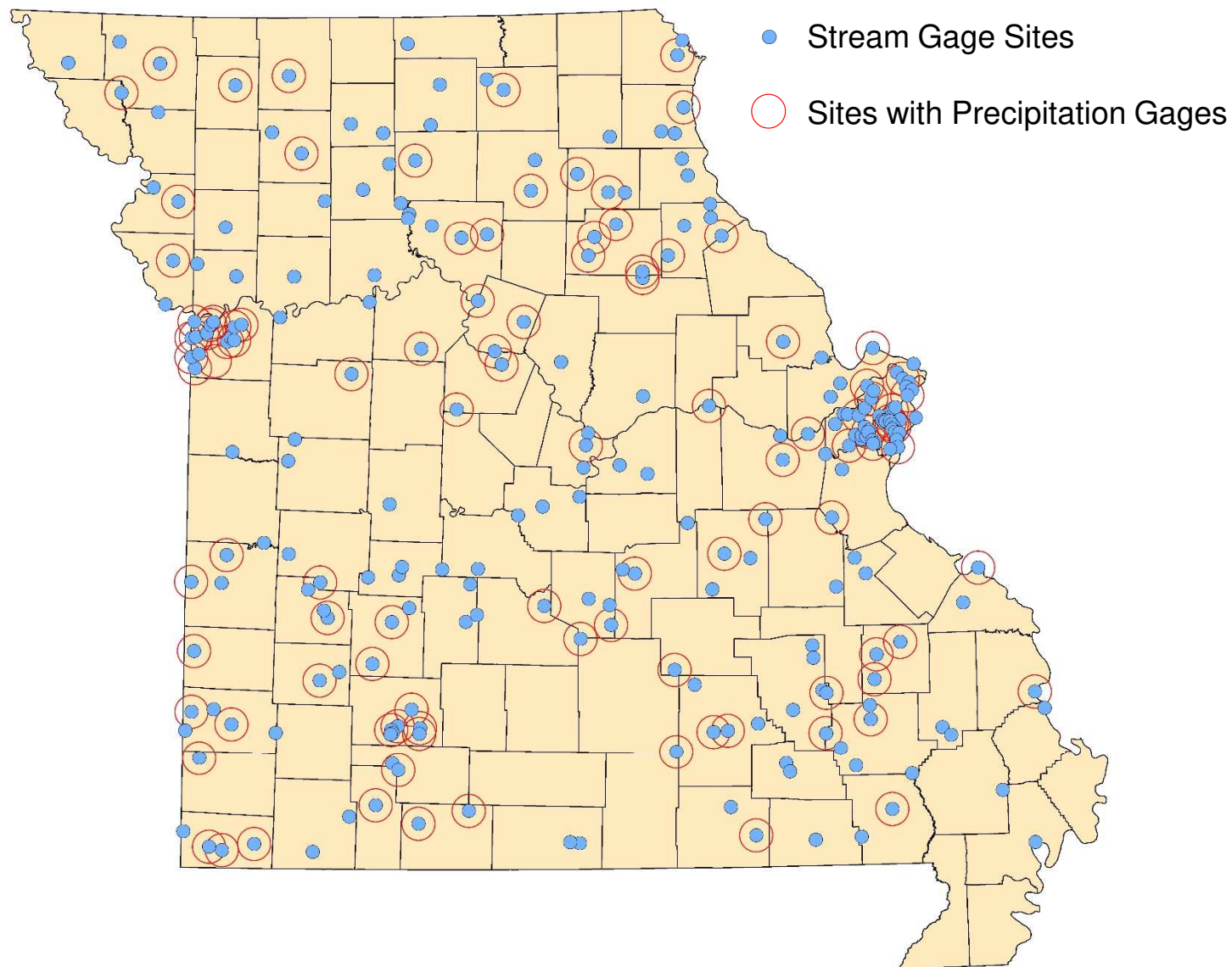
Water Data Collection in Missouri

Scott Kaden, R.G.
Groundwater Section Chief
Water Resources Center
Missouri Geological Survey

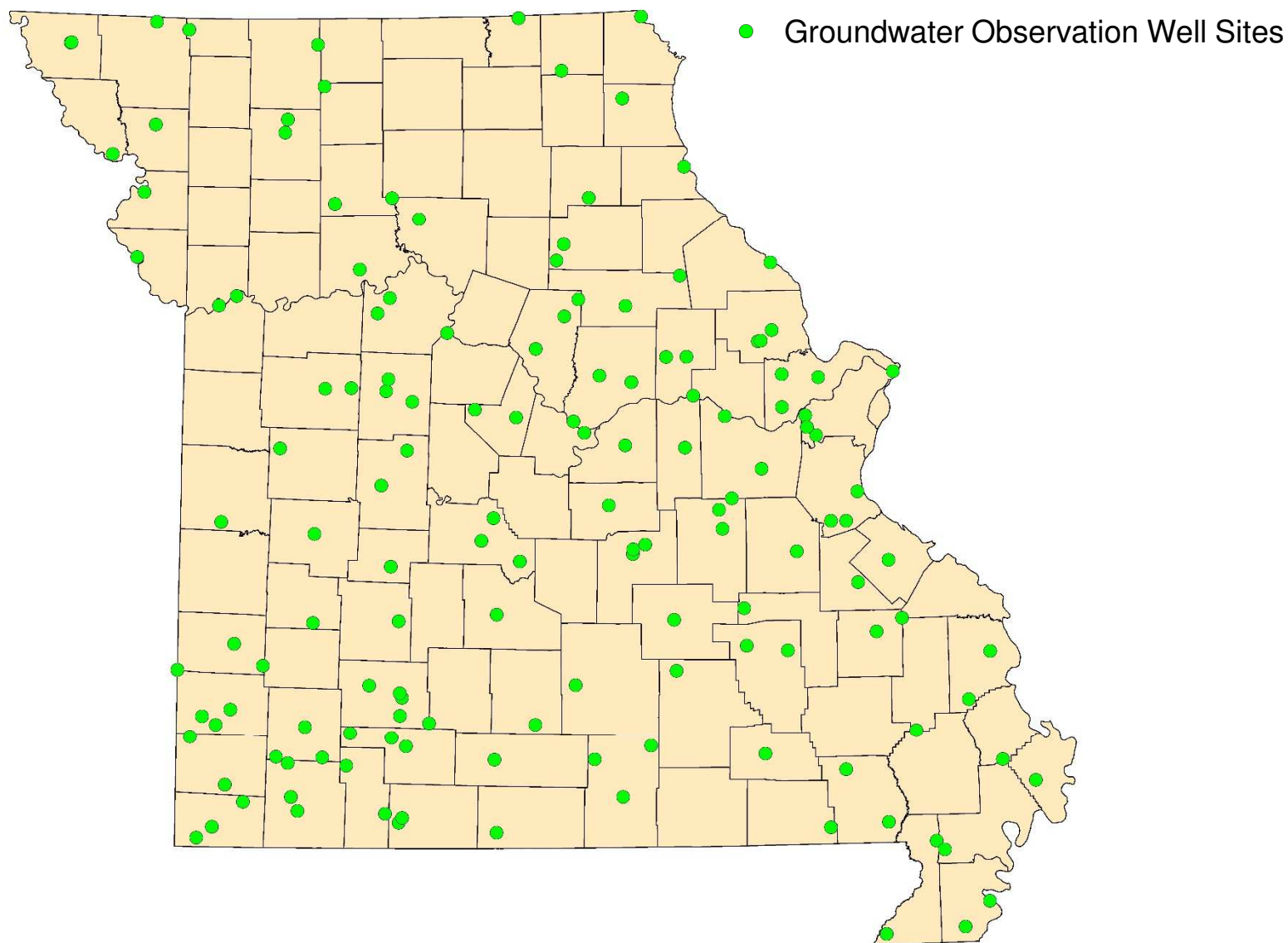
Missouri's Surface Water Data Collection Sites



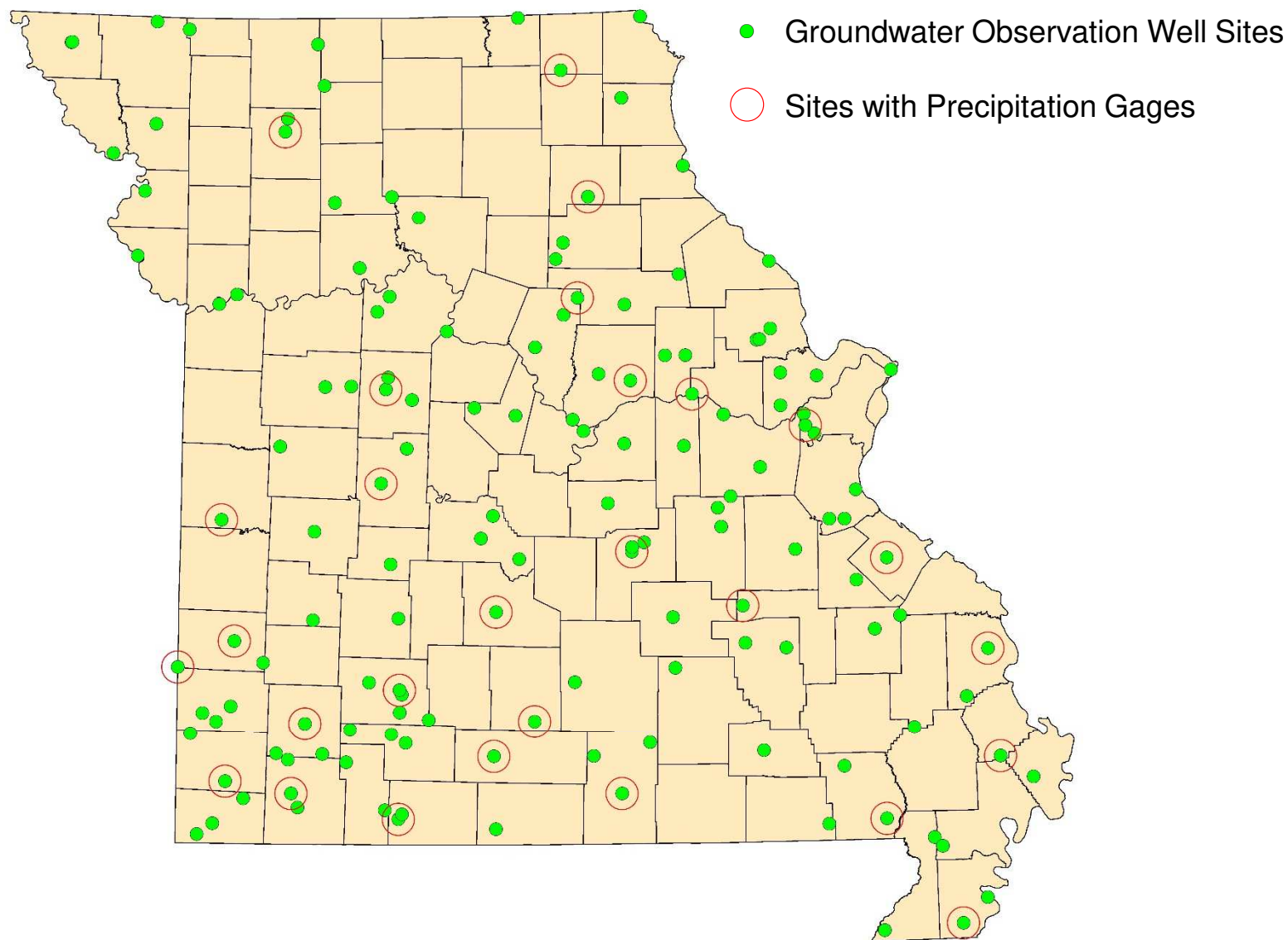
Missouri's Surface Water Data Collection Sites



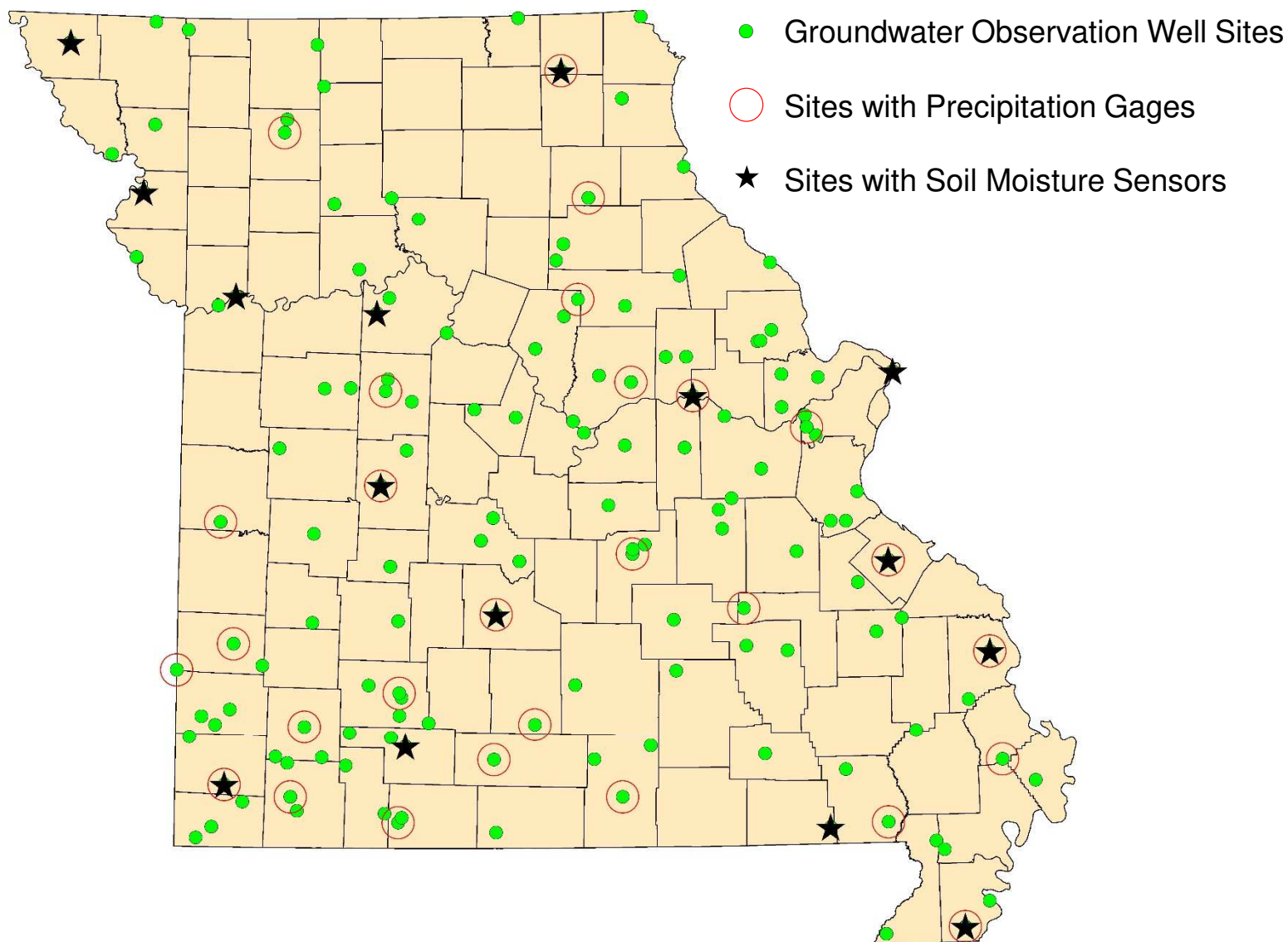
Missouri's Groundwater Data Collection Sites



Missouri's Groundwater Data Collection Sites



Missouri's Groundwater Data Collection Sites



Major Water User Data Collection



What is a Major Water User?

Missouri State Statutes RSMo 256.400-433 says...

A major water user is any person, firm, corporation or other user, that has equipment with the capability to withdraw or divert 100,000 gallons or more per day (70 gallon per minute) from any stream, river, lake, well, spring or other water source.

If a water user has multiple withdrawals, the total amount of water that can be produced is added to determine if they are considered a major water user.

Missouri's Major Water Users Law DOES NOT regulate how much water can be used or assess a usage tax. It DOES NOT affect the common law water rights of any person or organization. Its purpose is only to gather water-use data.

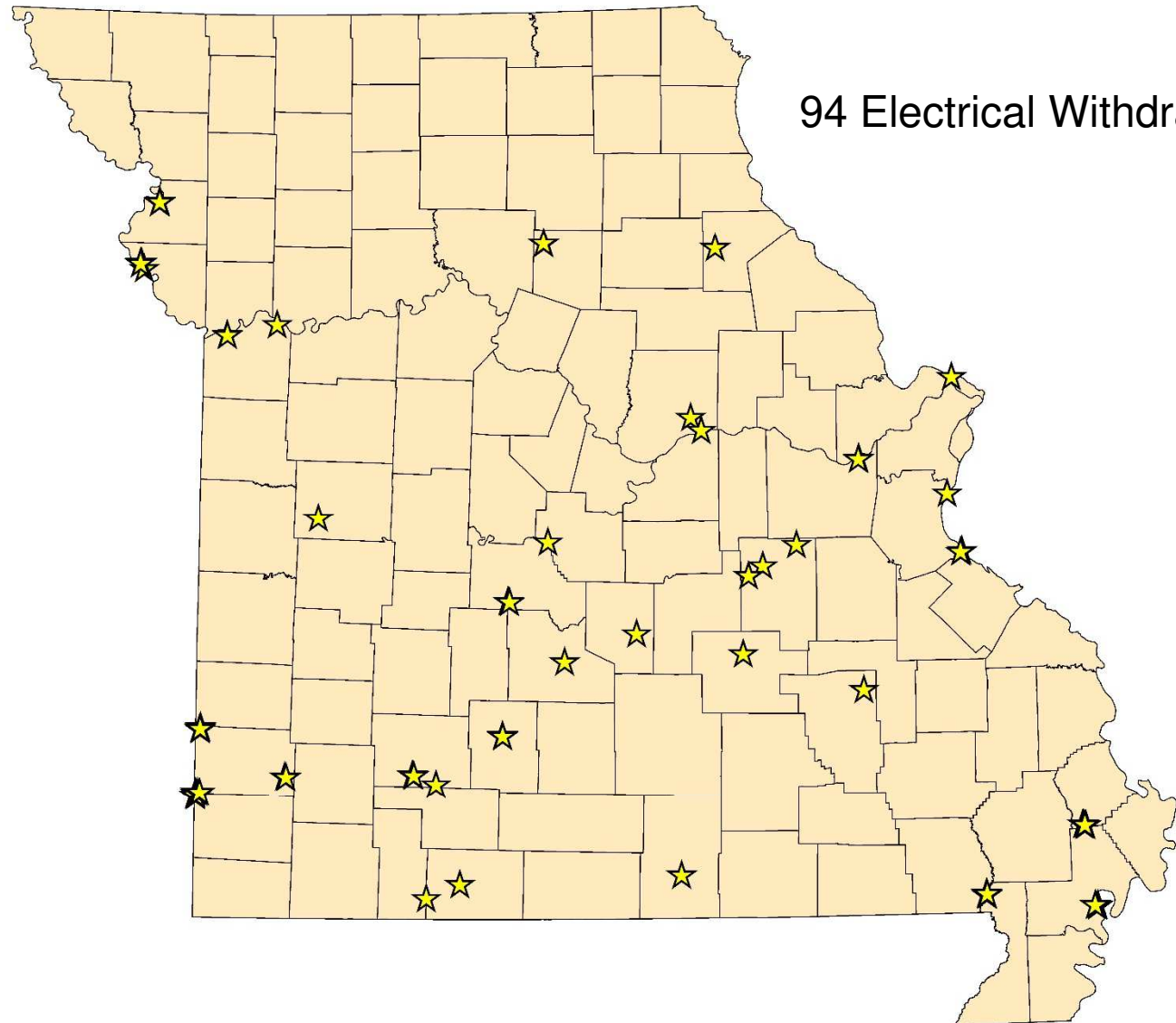
How is Water Use Data Collected in Missouri?

- Data is collected annually January-March for previous year.
- Data is reported by user via submittal of a hardcopy water report form or using online reporting system.
- Water user submits total water used and percentage of water use category.
- If the withdrawal has a meter, report the actual amount of water produced.
- If the withdrawal is not metered, estimates are acceptable
 - An irrigation well has a 3,000 gpm pump and is used 8 hours per day for a total of 45 days during the growing season.
 - $3,000 \text{ gal/min} \times 480 \text{ min/day} \times 45 \text{ days} = 64,800,000 \text{ gallons}$
 - A hog confinement operation operates year round and has four barns that each house 3,500 hogs weighing 25-50 lbs.
 - Average water consumption for hogs this size is 1.2 gal/day
 - $3,500 \text{ hogs/barn} \times 4 \text{ barns} \times 1.2 \text{ gallons/hog/day} \times 365 \text{ days} = 6,132,000 \text{ gallons}$



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

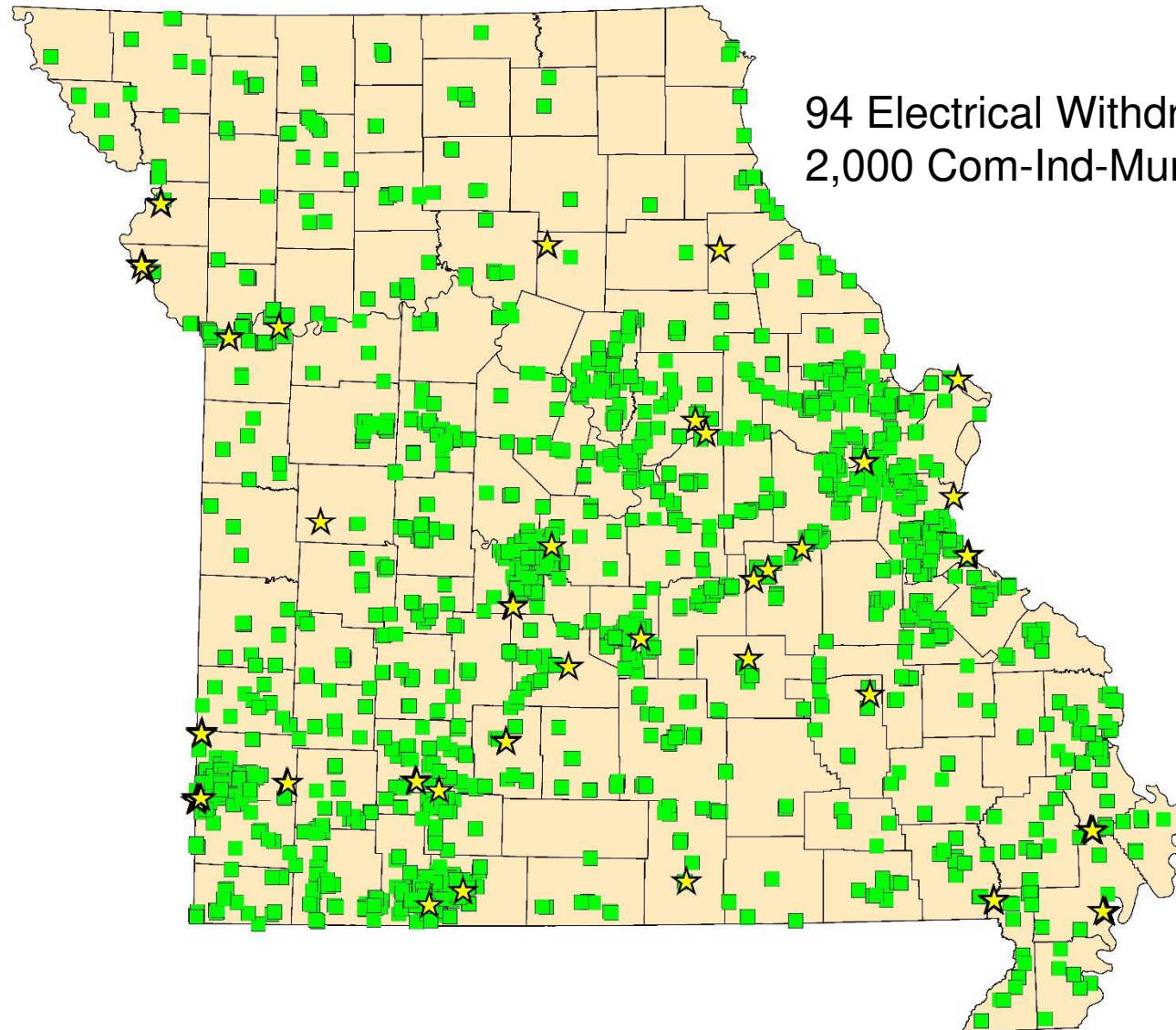
2019 MWU Withdrawals





MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

2019 MWU Withdrawals

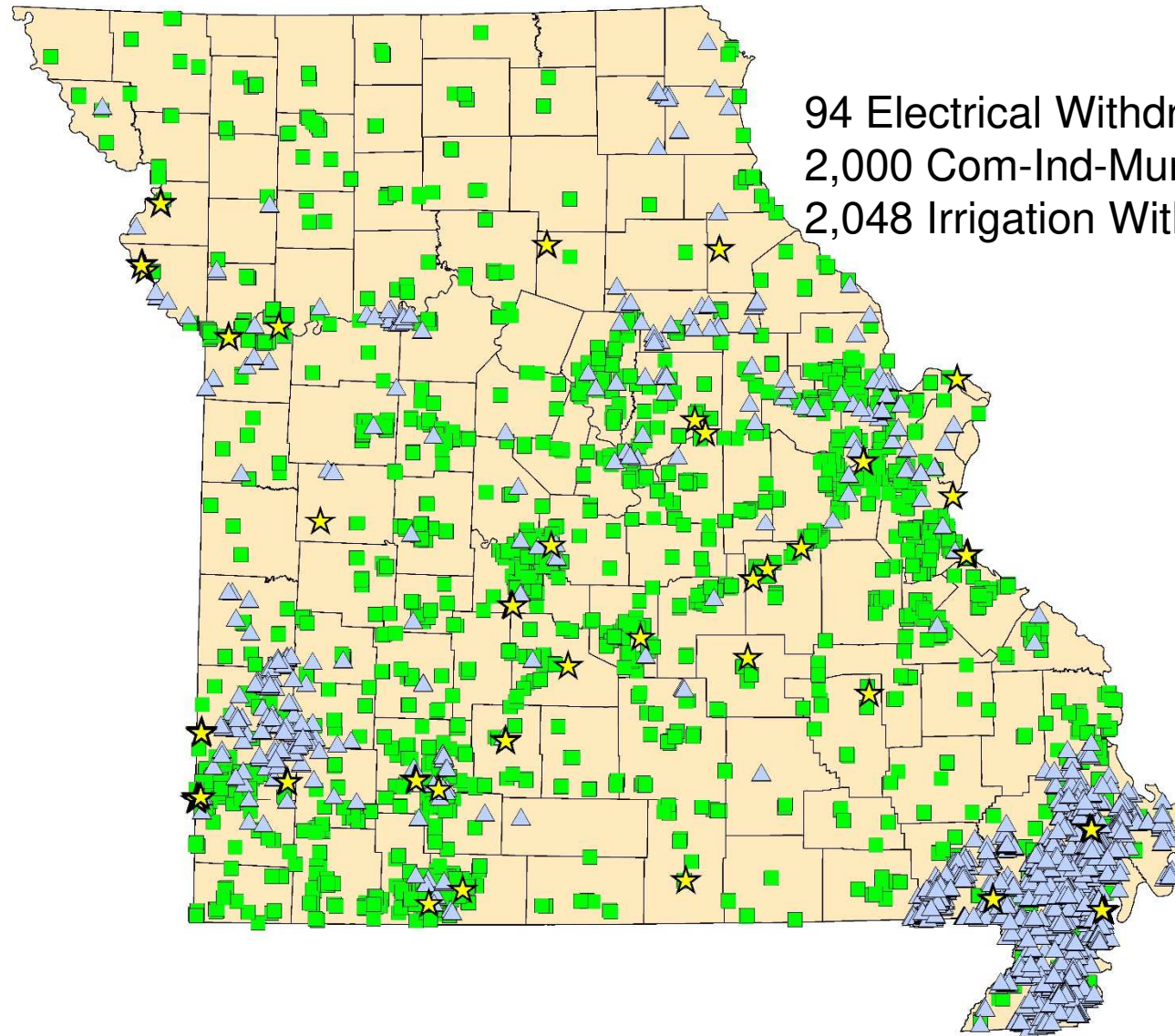


94 Electrical Withdrawals
2,000 Com-Ind-Mun Withdrawals



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

2019 MWU Withdrawals



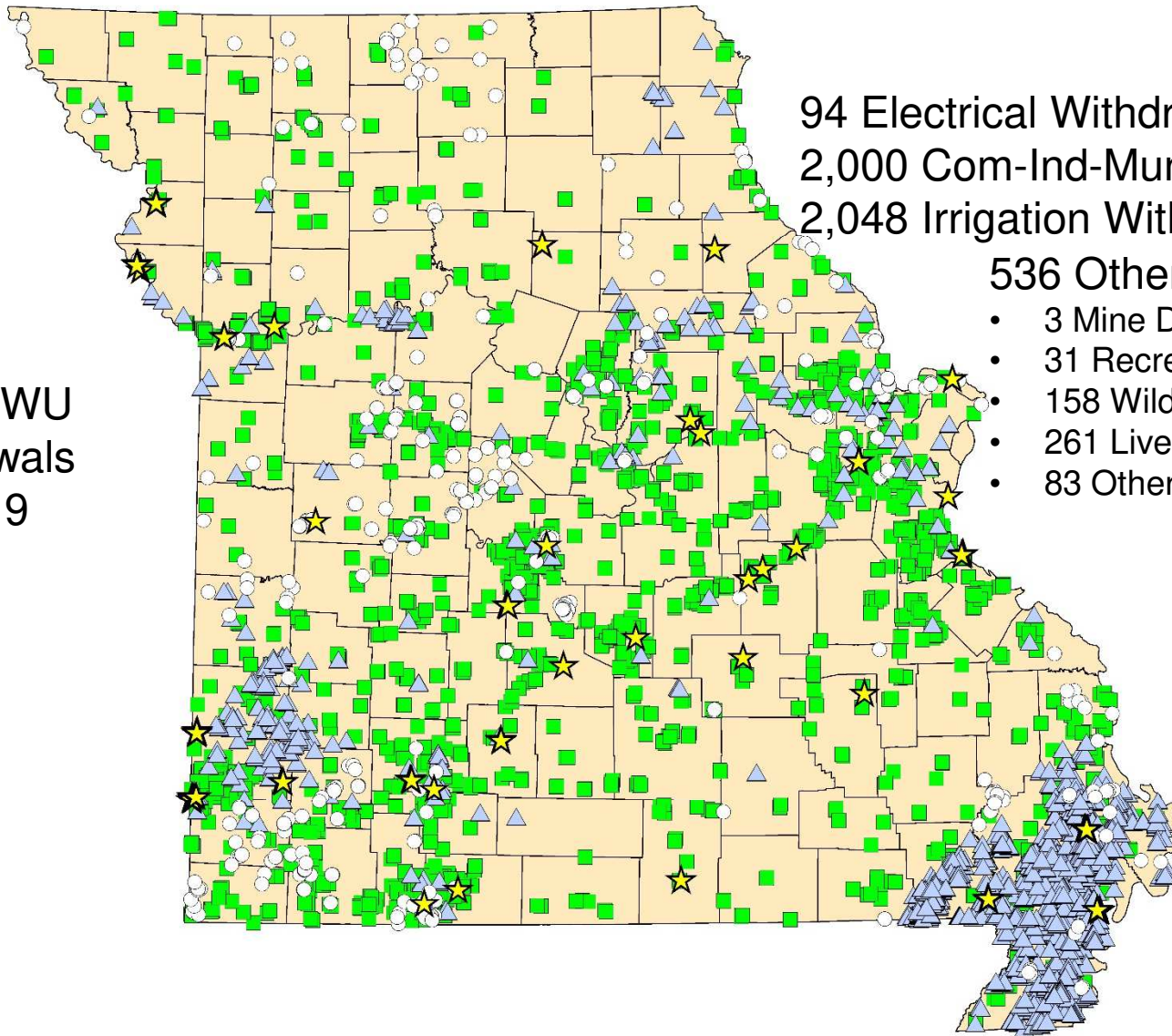
94 Electrical Withdrawals
2,000 Com-Ind-Mun Withdrawals
2,048 Irrigation Withdrawals



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

2019 MWU Withdrawals

4,678 MWU
Withdrawals
in 2019



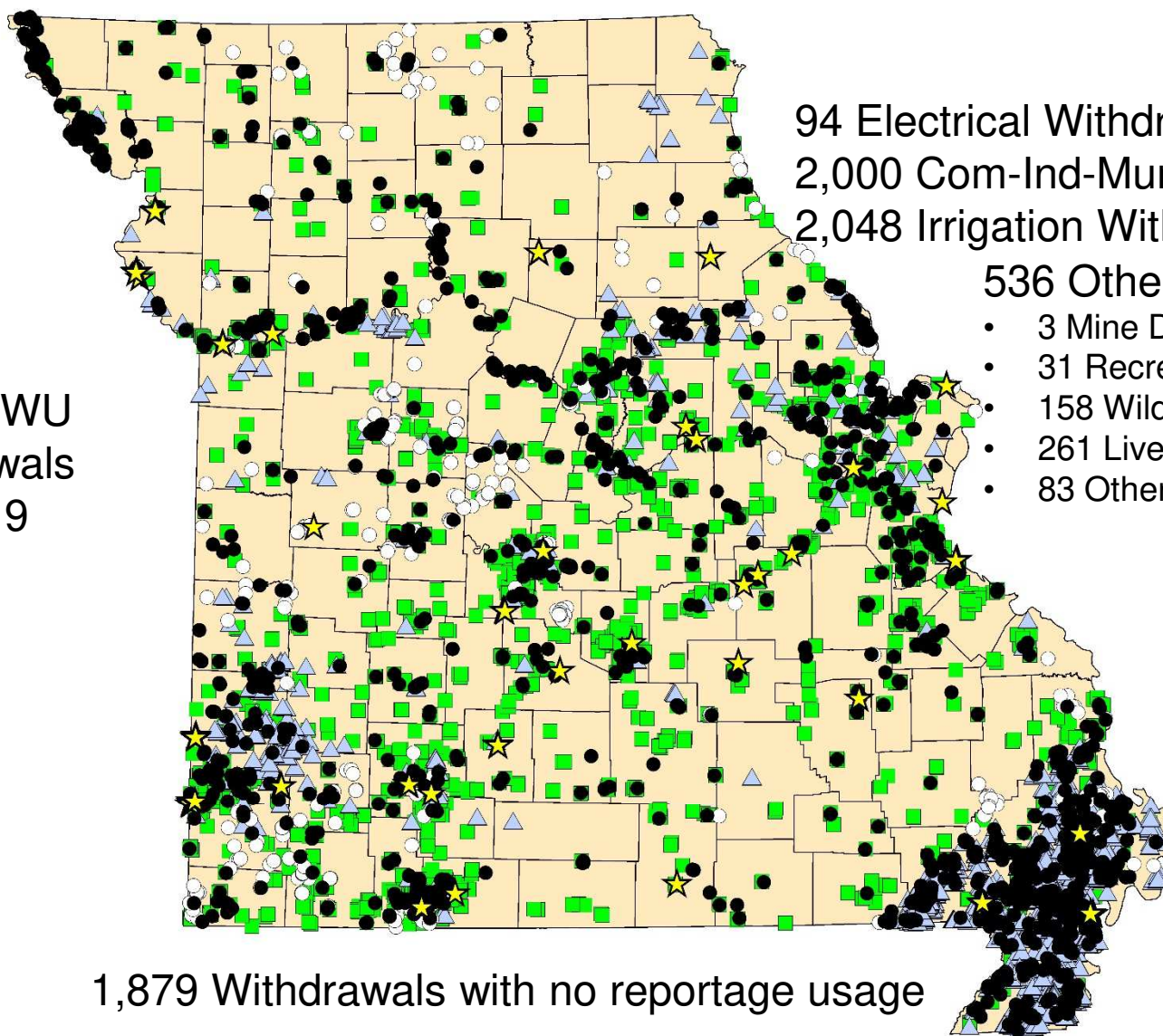
- 94 Electrical Withdrawals
- 2,000 Com-Ind-Mun Withdrawals
- 2,048 Irrigation Withdrawals
- 536 Other Withdrawals
 - 3 Mine Dewater
 - 31 Recreation
 - 158 Wildlife
 - 261 Livestock
 - 83 Other

2019 MWU Withdrawals

4,678 MWU
Withdrawals
in 2019

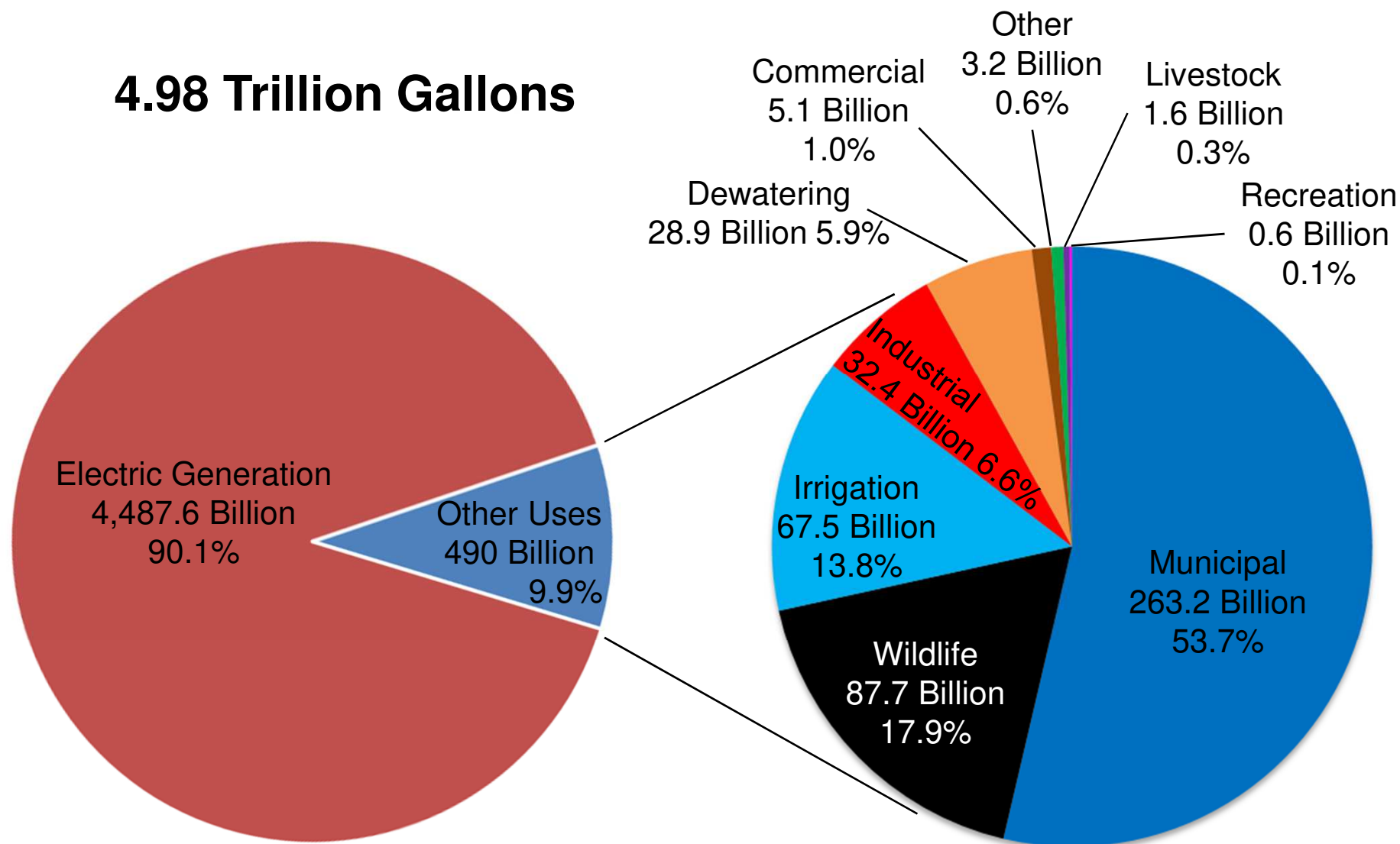
1,879 Withdrawals with no reportage usage

- 94 Electrical Withdrawals
- 2,000 Com-Ind-Mun Withdrawals
- 2,048 Irrigation Withdrawals
- 536 Other Withdrawals
 - 3 Mine Dewater
 - 31 Recreation
 - 158 Wildlife
 - 261 Livestock
 - 83 Other



2019 MWU Withdrawals (in gallons)

4.98 Trillion Gallons



What is WUDR?

- USGS Water Use Data and Research program
- Grant authorized by the **SECURE** Water Act
- Supports activities related to water use data collection
- Available to state water resource agencies
- Began in 2015 with \$26,000 available to all states to evaluate current water use data and develop a workplan to improve the data
- Starting in 2016 and years following the grant is distributed in a competitive process with each state allowed to received up to \$250,000 in grant funds

MGS-WUDR Grant Projects

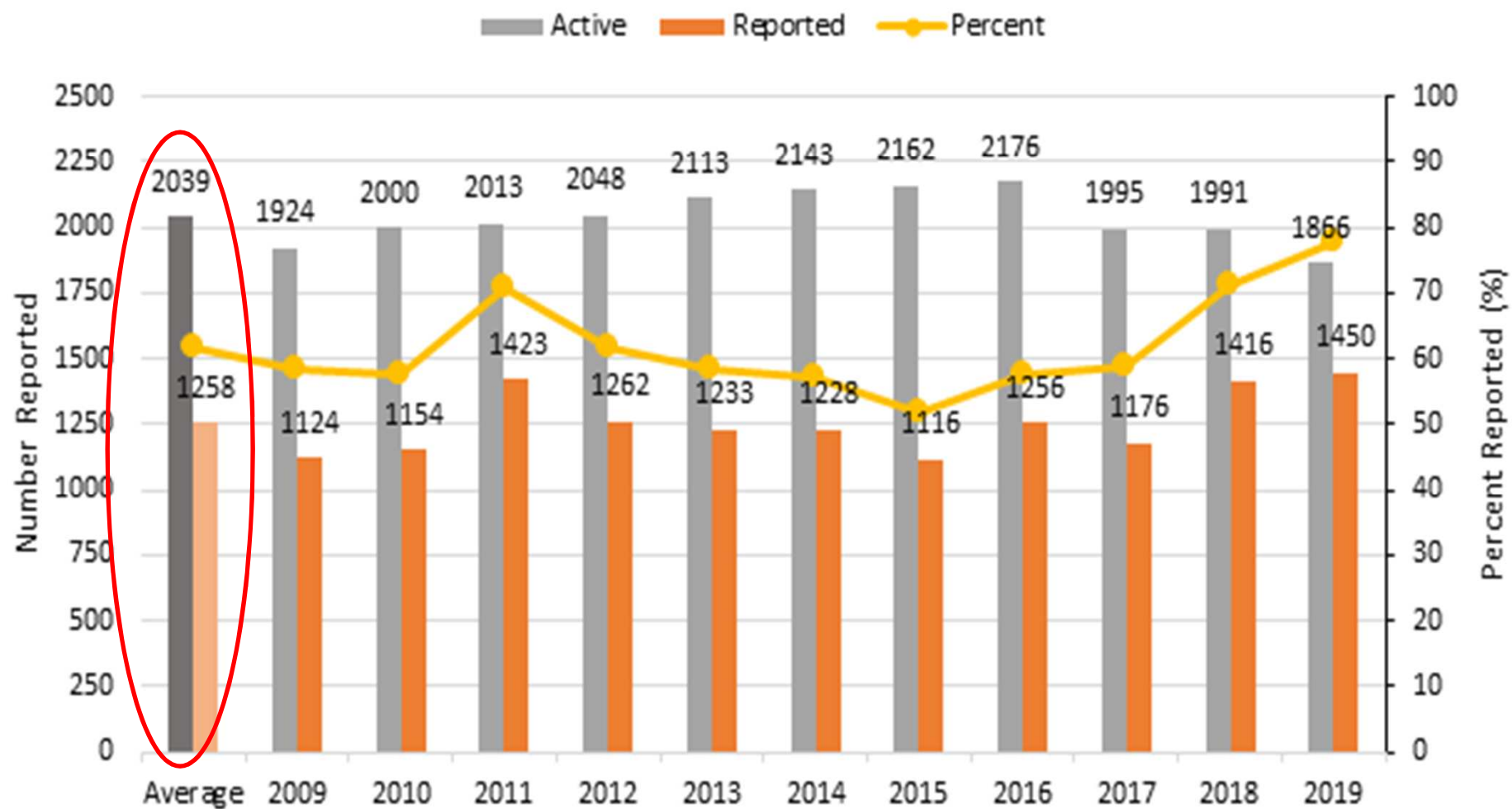
- Improve Irrigation Data Collection
 - Increase quantity and quality of crop irrigation data
 - Increase number of golf courses reporting water use data
 - Expand golf course data collection to include irrigated acres
- Increase Livestock Water Use Data
 - Increase water data collection from confined animal feeding operations
- Updated IT Water Use Applications
 - Develop calculators to estimate water use
 - Redesign online water use reporting system

MGS-WUDR Grant Projects

- Improve Data Used for Electricity Generation
 - Ensure data is collected from all hydro and thermoelectric facilities
 - Identify water not consumed and returned to the system
- Identification of Water Sources
 - Determine water quality (fresh vs saline water) for all water sources
 - Determine aquifer for all groundwater sources
 - Determine HUC-8 for all surface water sources
- Update the Missouri Water Resources Plan
- Educational Efforts
 - Updated MWU webpage, FAQ, and fact sheets
 - Presentations at irrigator and soil conservation conferences
 - Attended agriculture workshops

Reporting Compliance

Active vs. Reported MWU 2009-2019



What are challenges in getting water use data?

- Groundwater users believe the certification of their well satisfies the MWU requirements
- Some users simply do not know about the reporting requirement
- Some may know about the requirement, but don't know how to register and report their water usage
- Some who know about the requirement and know how to report choose not to report their usage
 - Many forget despite numerous reminders from MGS
 - Many are intimidated by the process
 - There is no penalty for failure to report usage
 - Many do not want the government to know their water usage
- Types of data reported
 - Over reporting to stake their claim in the event usage limits are ever set
 - Under reporting in case a usage tax is established
 - Actual usage reporting



Questions???

Scott Kaden
scott.kaden@dnr.mo.gov
573-368-2194

Missouri Department of Natural Resources
Missouri Geological Survey
Water Resources Center
www.dnr.mo.gov/geology/wrc