

# Water in Kansas: Past and Present

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Director Emeritus

Kansas Geological Survey





Kiowa County

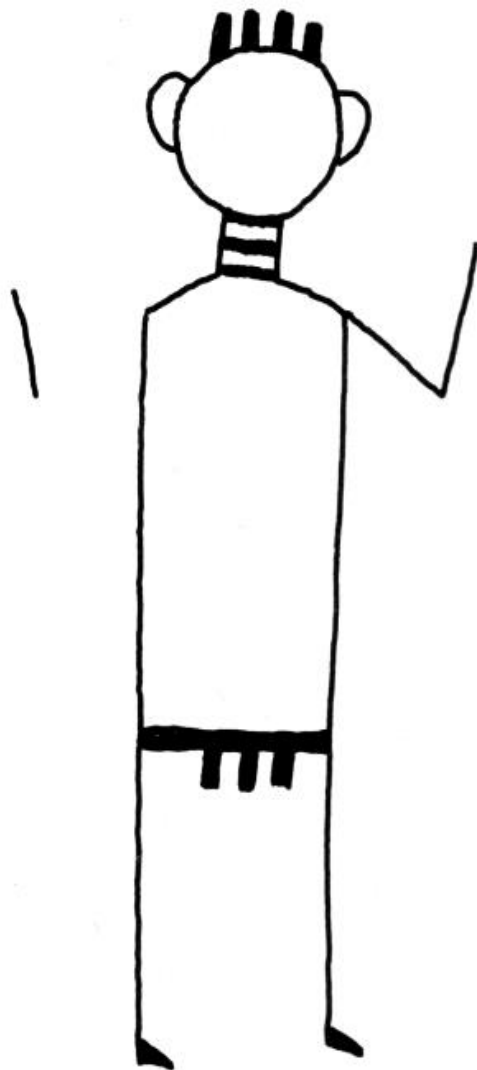




Petroglyph, Rice County







14CM305. This drawing of the anthropomorphic figure shows details that are not readily visible in the photograph.





Big Gyp Cave, Comanche County



**Alcove Spring,  
Marshall County**





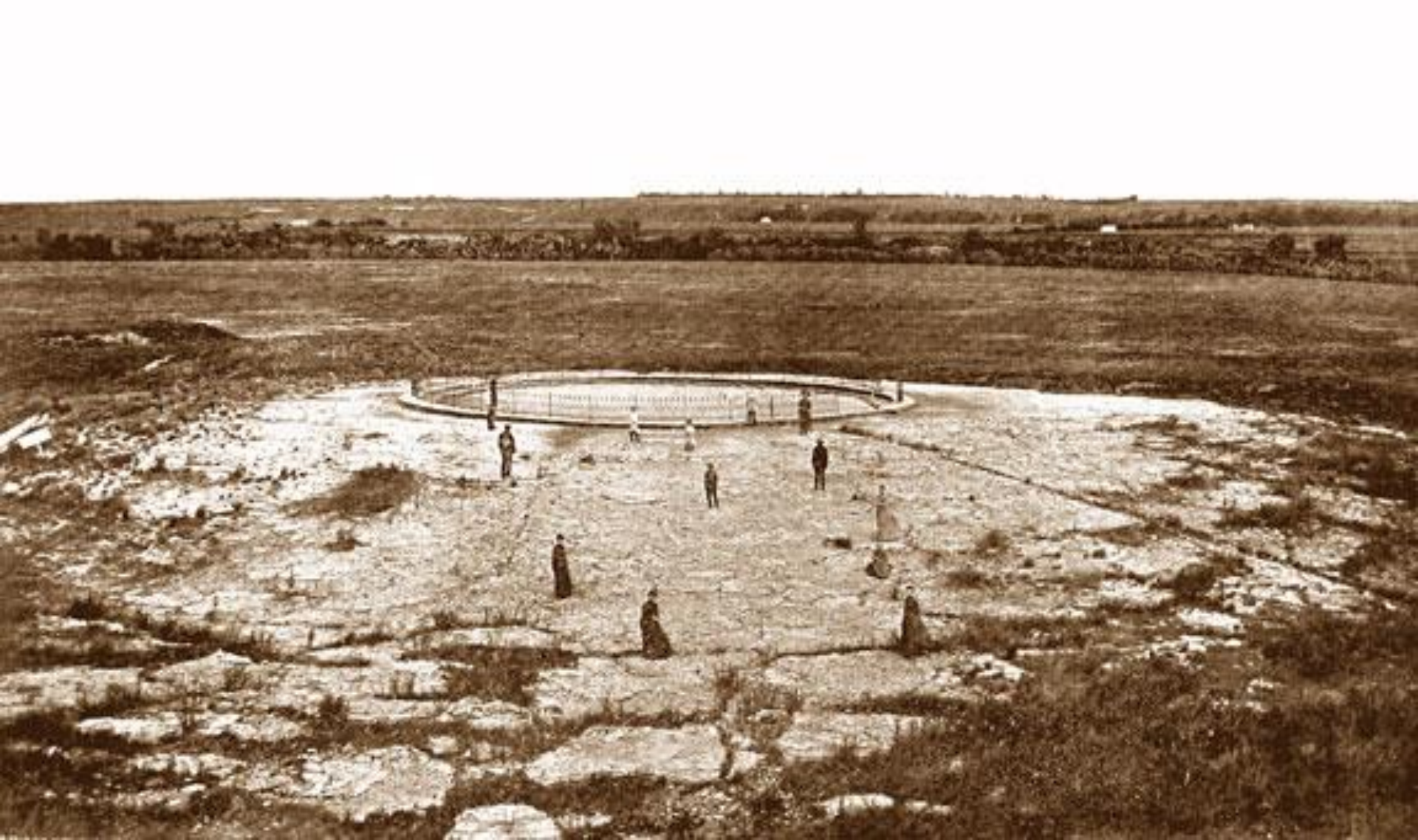
**Diamond Spring,  
Morris County**





Wagon Bed Spring, Grant County





Waconda Spring, Mitchell County





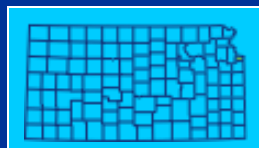
Tallgrass Prairie National Preserve, Chase County





Red House Spring, Chase County





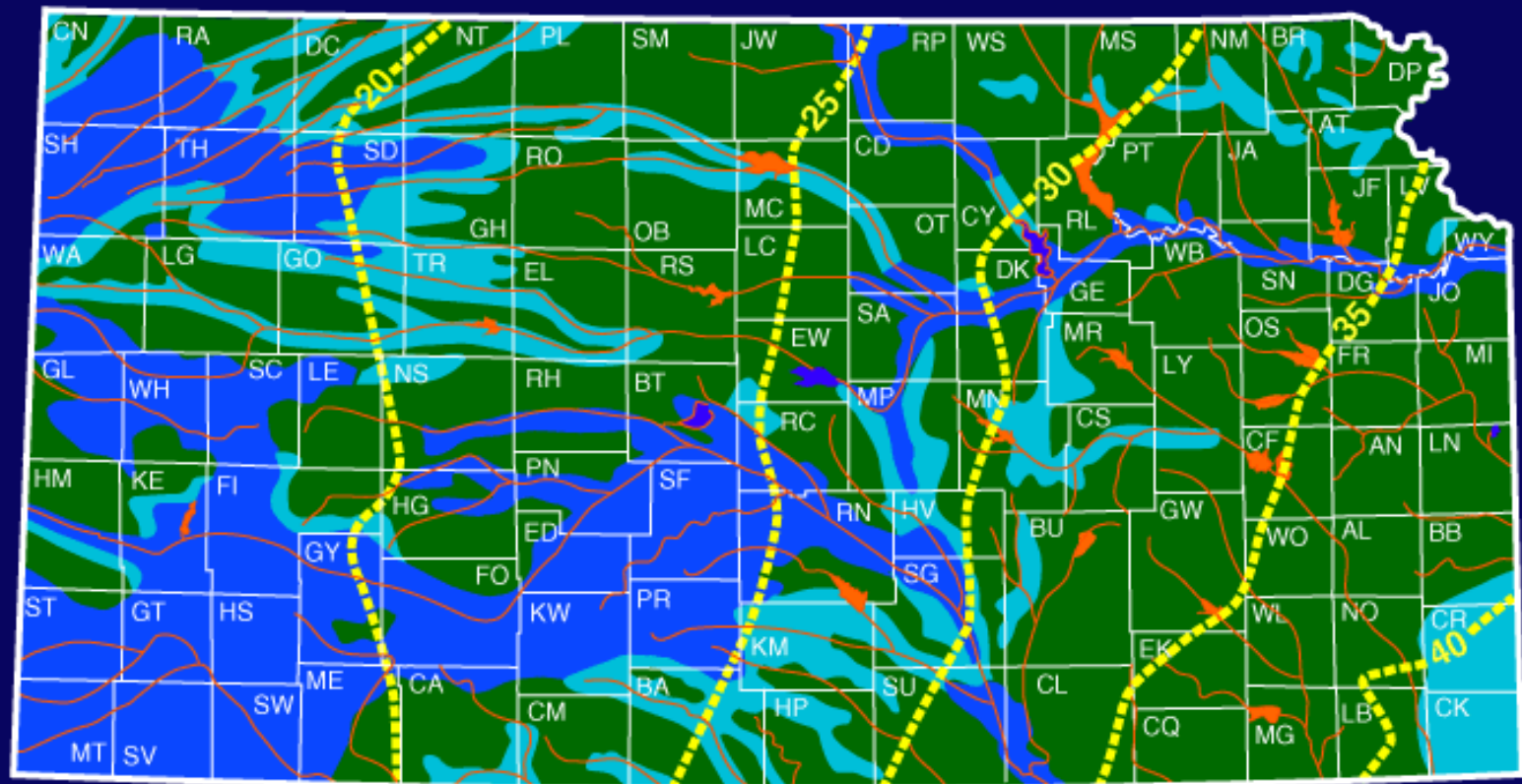
**Kansas/Missouri confluence, Wyandotte County**





Arkansas/Little Arkansas confluence, Sedgwick County




# General Availability of Ground Water and Normal Annual Precipitation in Kansas



 Yield of greater than 500 gal. of water/min

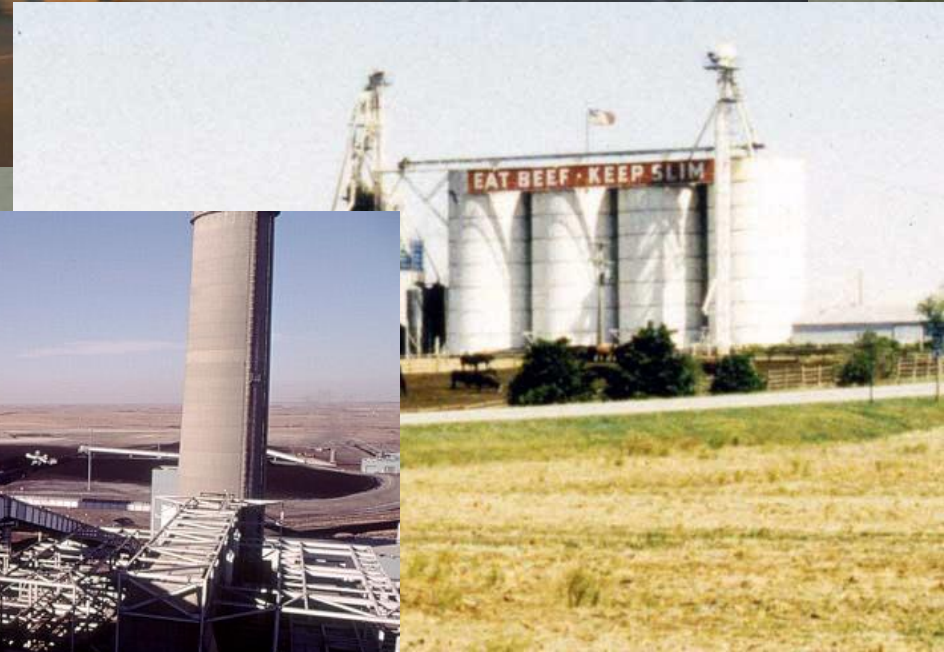
 Yield of 100-500 gal. of water/min

 Yield of less than 100 gal. of water/min

 Precipitation contours (in/yr)

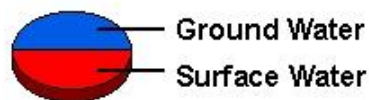
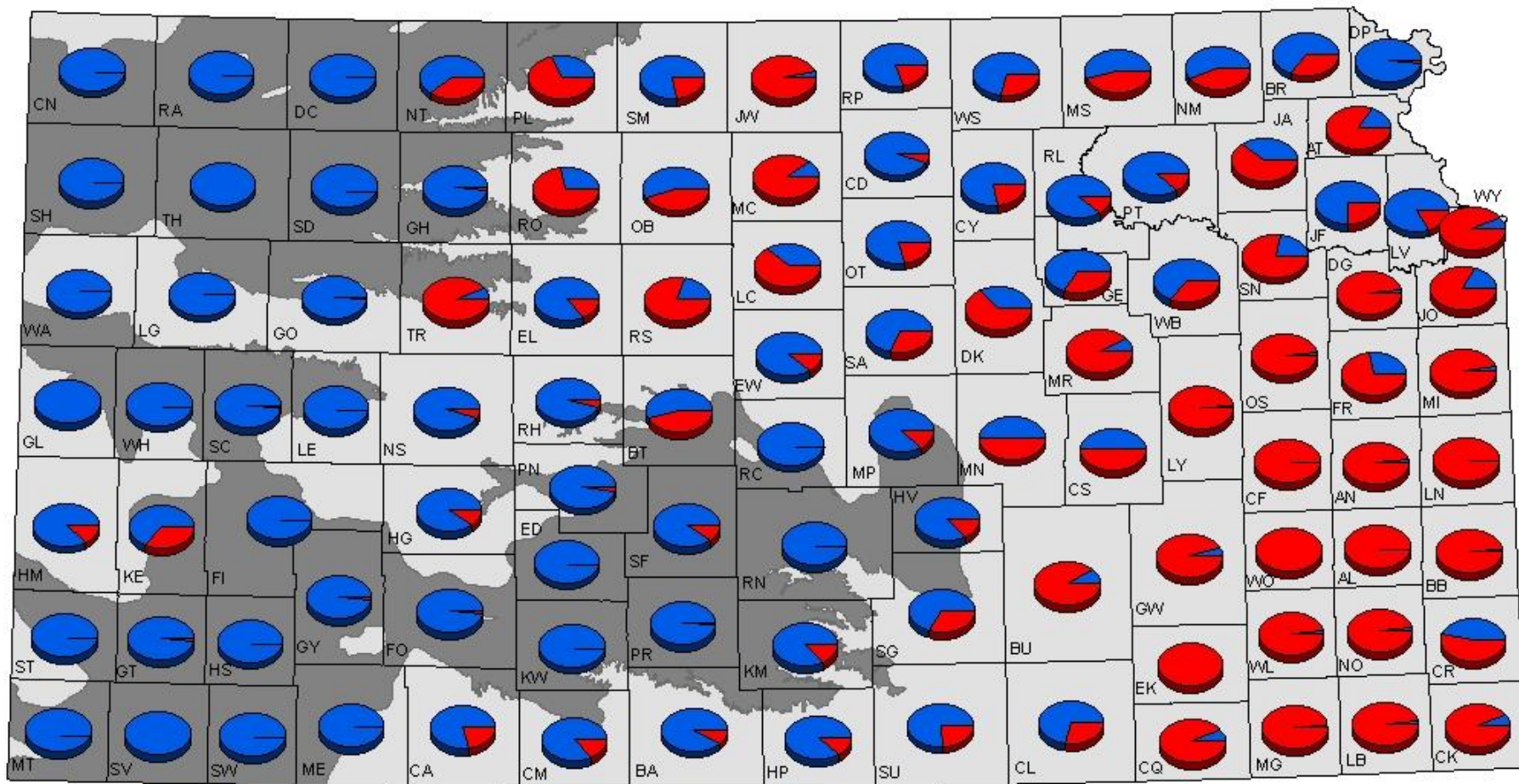
 Reservoir

# How Water is Used in Kansas





# Source of Water- Ground vs Surface

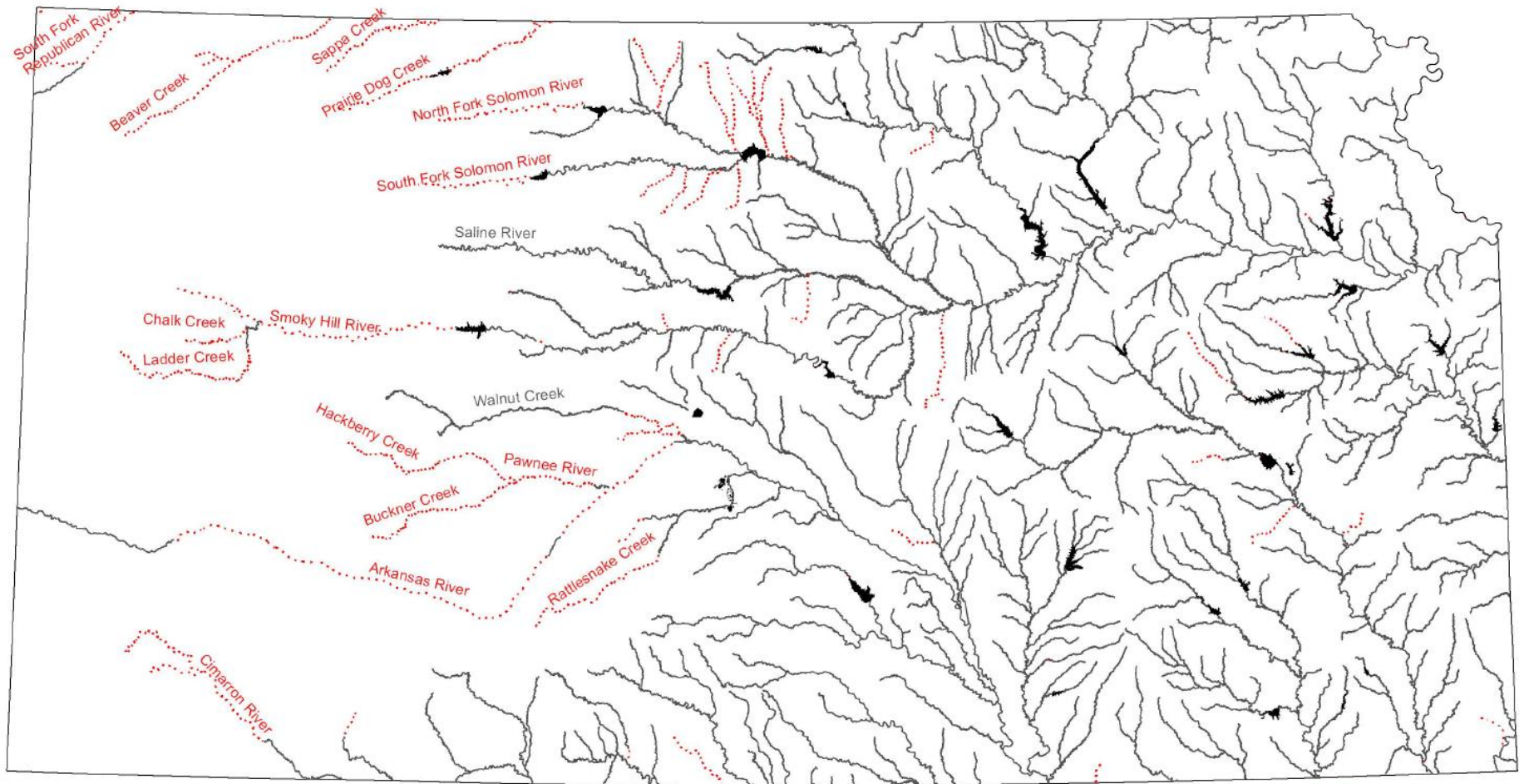




## Major Perennial Streams in Kansas



# Major Perennial Streams 1961 and 2009



Kansas Department of Agriculture  
Administrative Services, GIS  
March 12, 2010

## Legend

- ..... Streams regarded as perennial in 1961 but as nonperennial in 2009
- Streams regarded as perennial in both 1961 and 2009

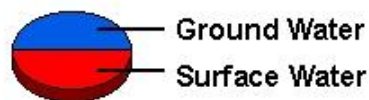
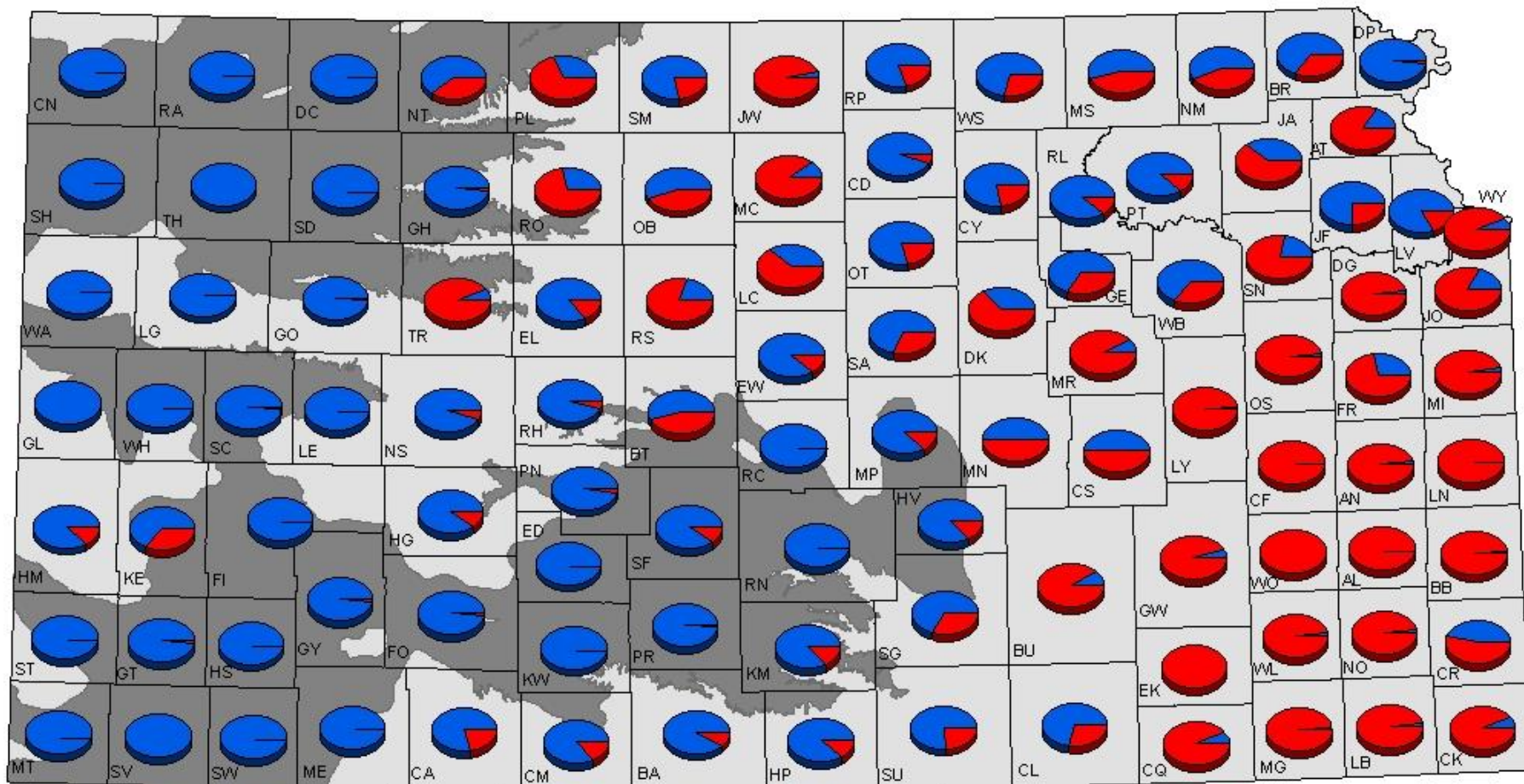
Stream Data provided by the Kansas Department of Health and Environment.  
1961 coverage (USGS: special surveys)  
2009 coverage (KDHE: long-term observations)

Perennial: containing water throughout the year except for infrequent periods of severe drought (USGS, 1996).



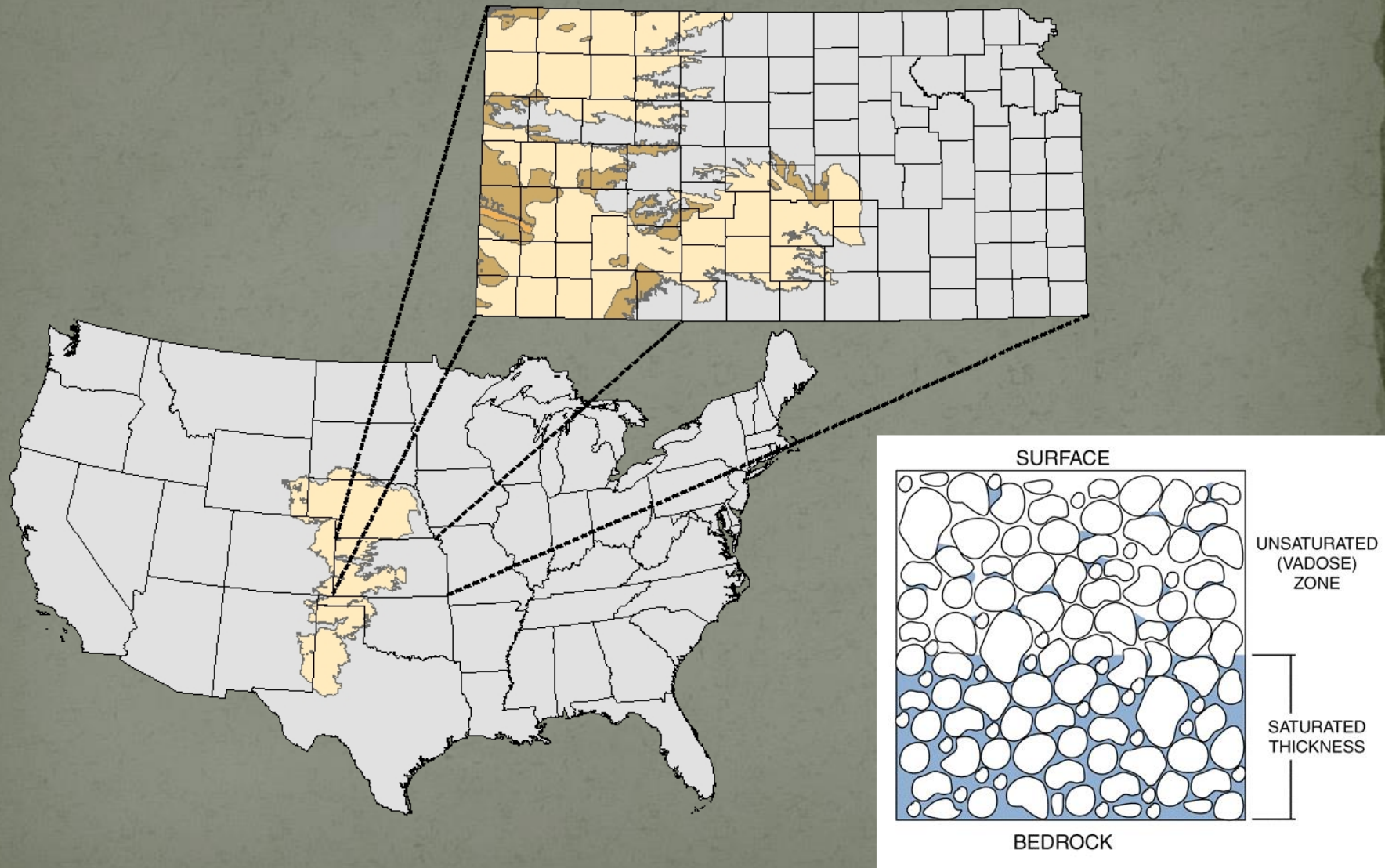
Note: Some of the smaller streams shown on this map lacked recent observational data but were carried over as perennial systems pending further study. The standing body of water located near the center of the map and just north of the Arkansas River is Cheyenne Bottoms, which is normally a terminal basin.

# Source of Water- Ground vs Surface

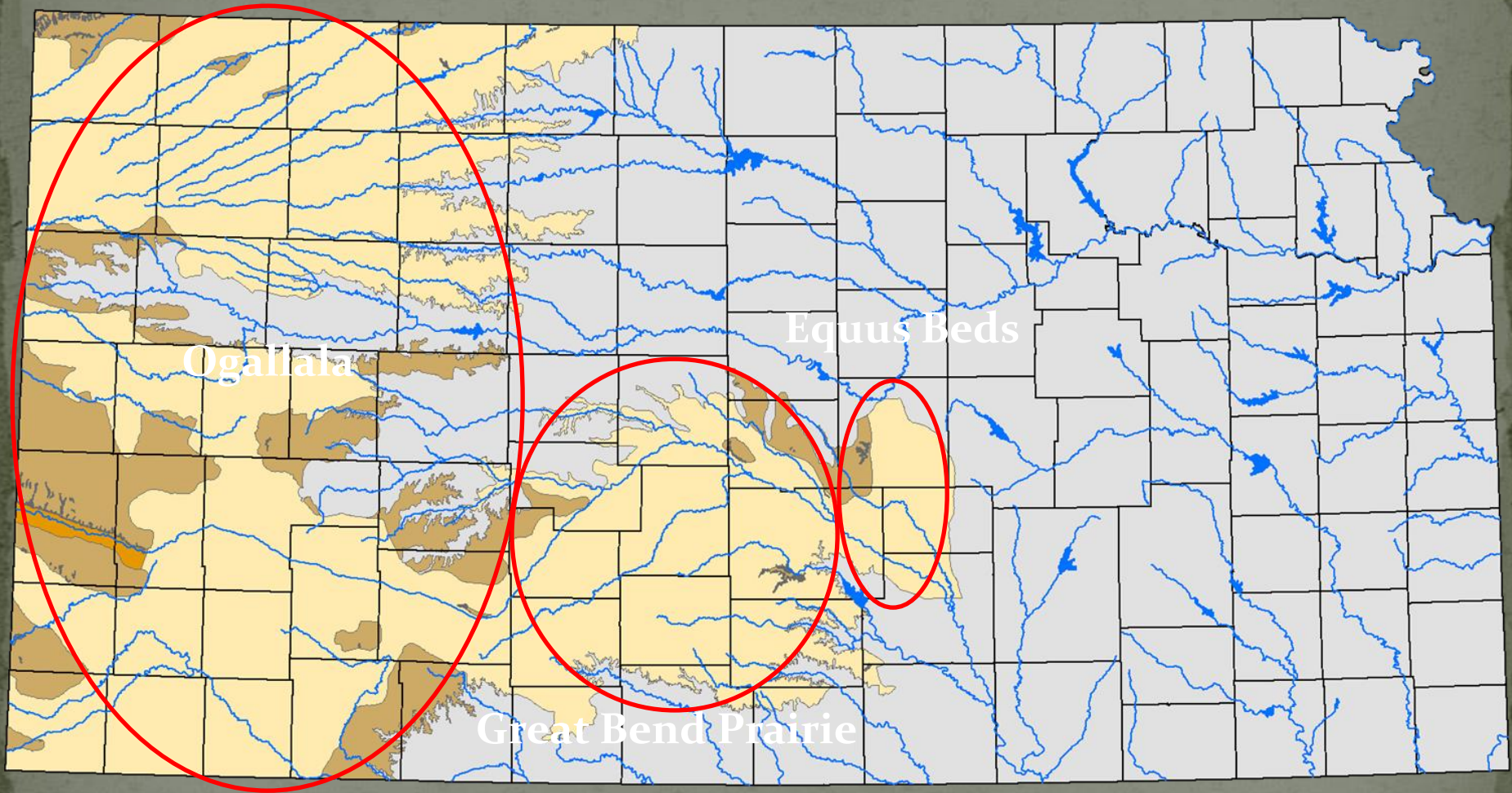




# The High Plains Aquifer



# The Kansas High Plains Aquifer













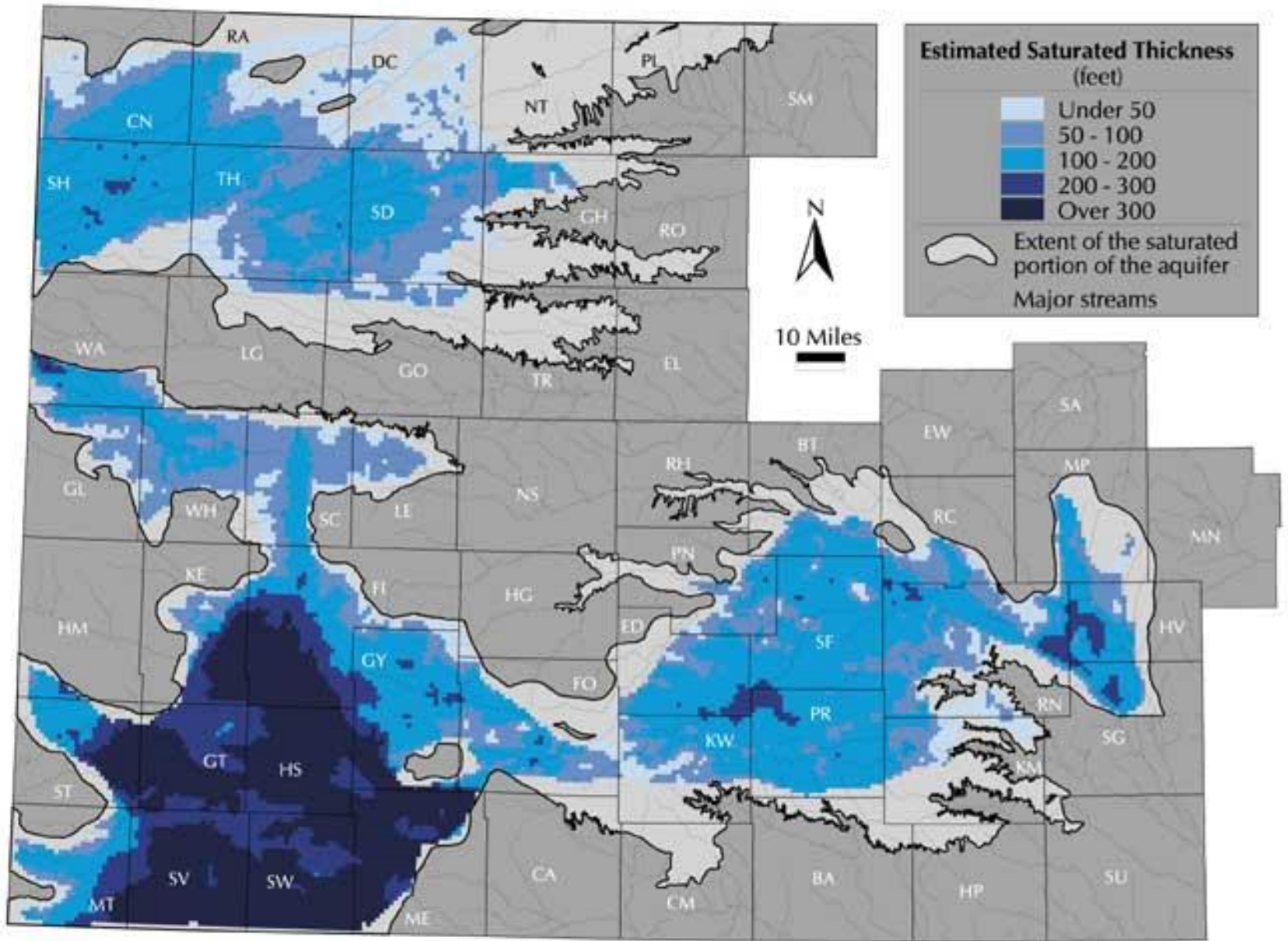
Finney County



IBP plant, Finney County

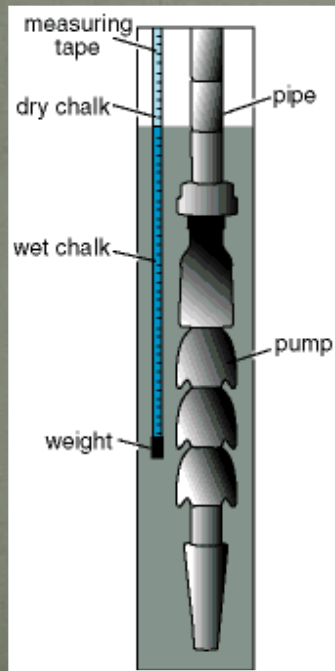
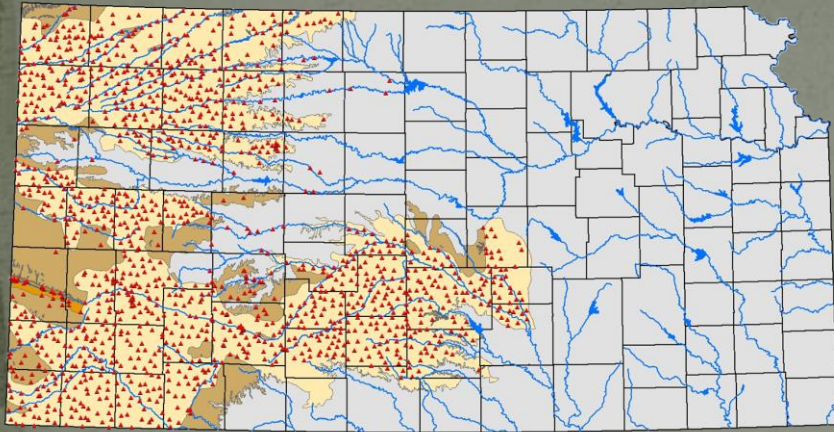


# Estimated Saturated Thickness, Predevelopment





# Measuring a well

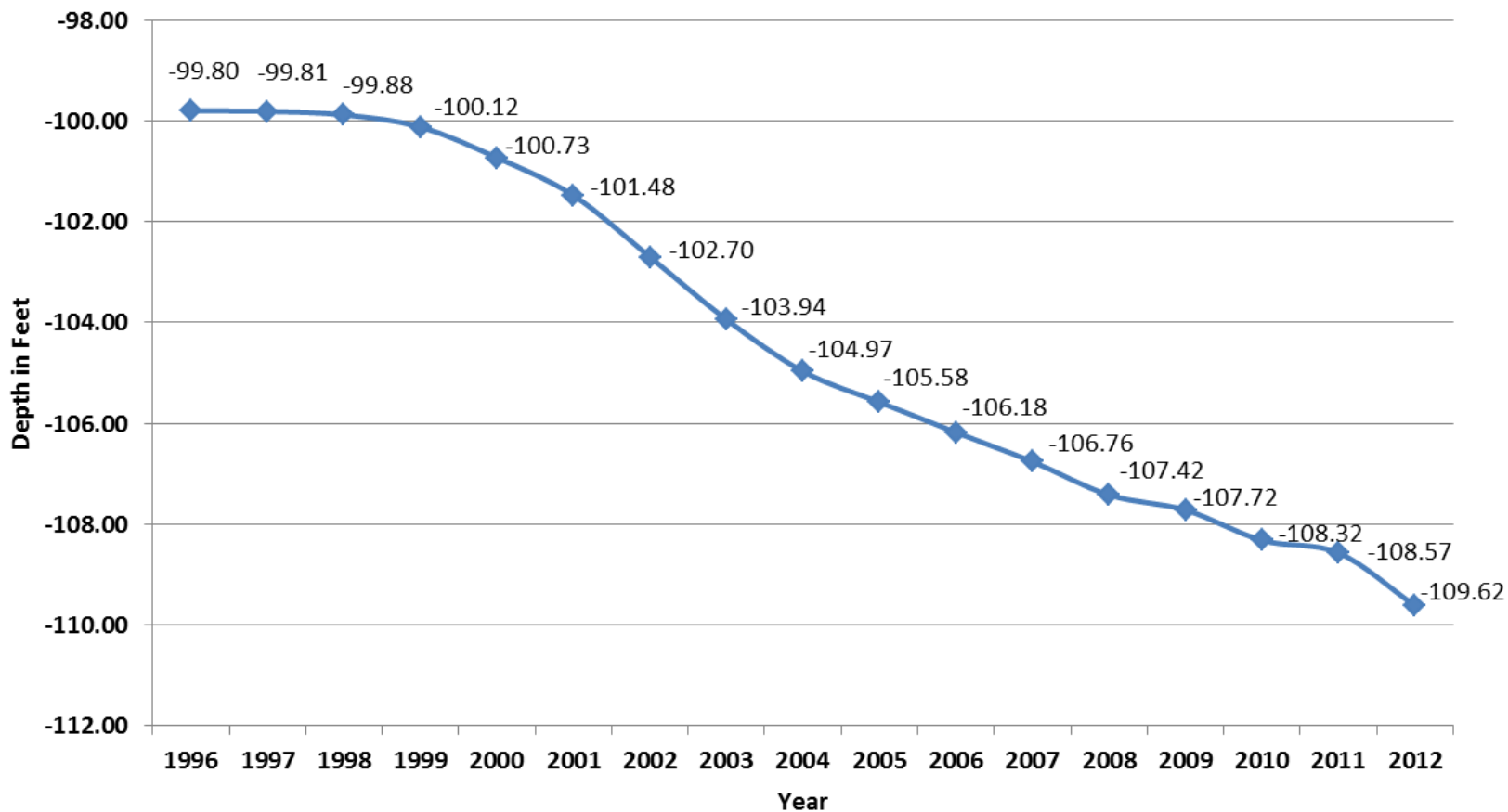




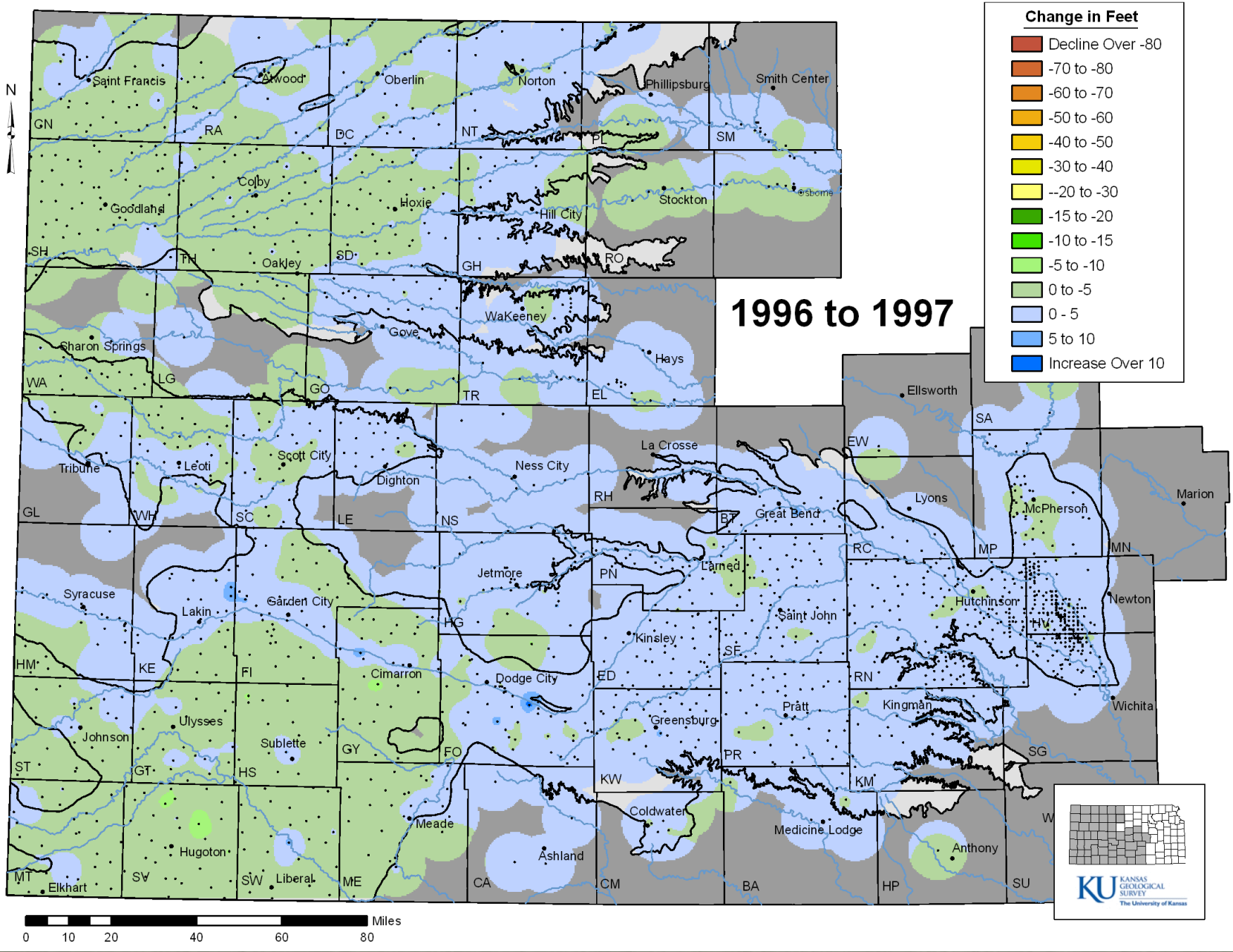


# Water Level Trends 1996 to 2012

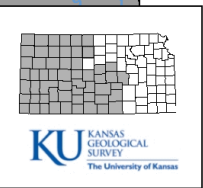
**Average Interpolated Depth to Water, 1996 to 2012,  
Kansas High Plains Aquifer**







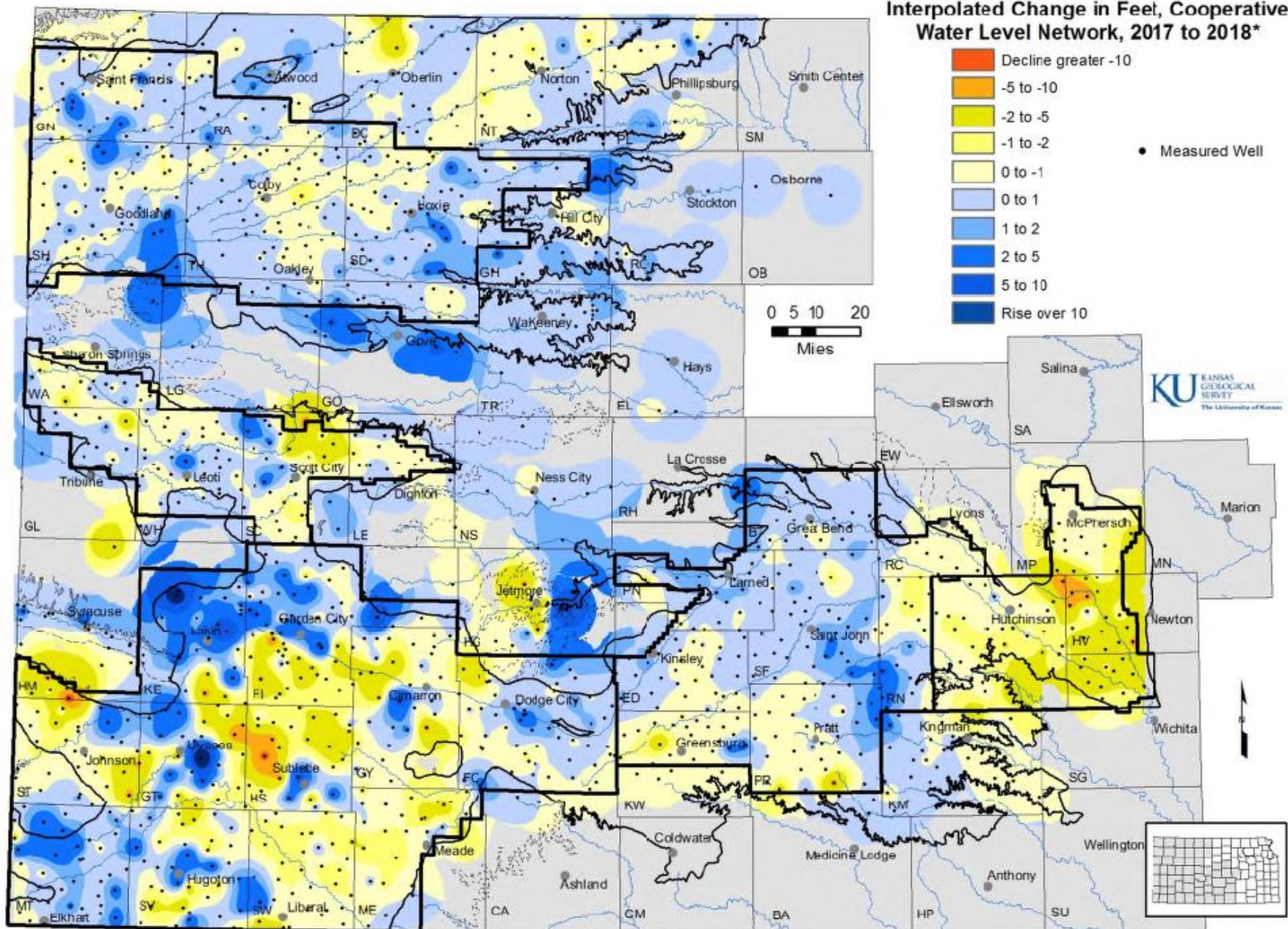
**1996 to 1997**



KU KANSAS GEOLOGICAL SURVEY  
The University of Kansas



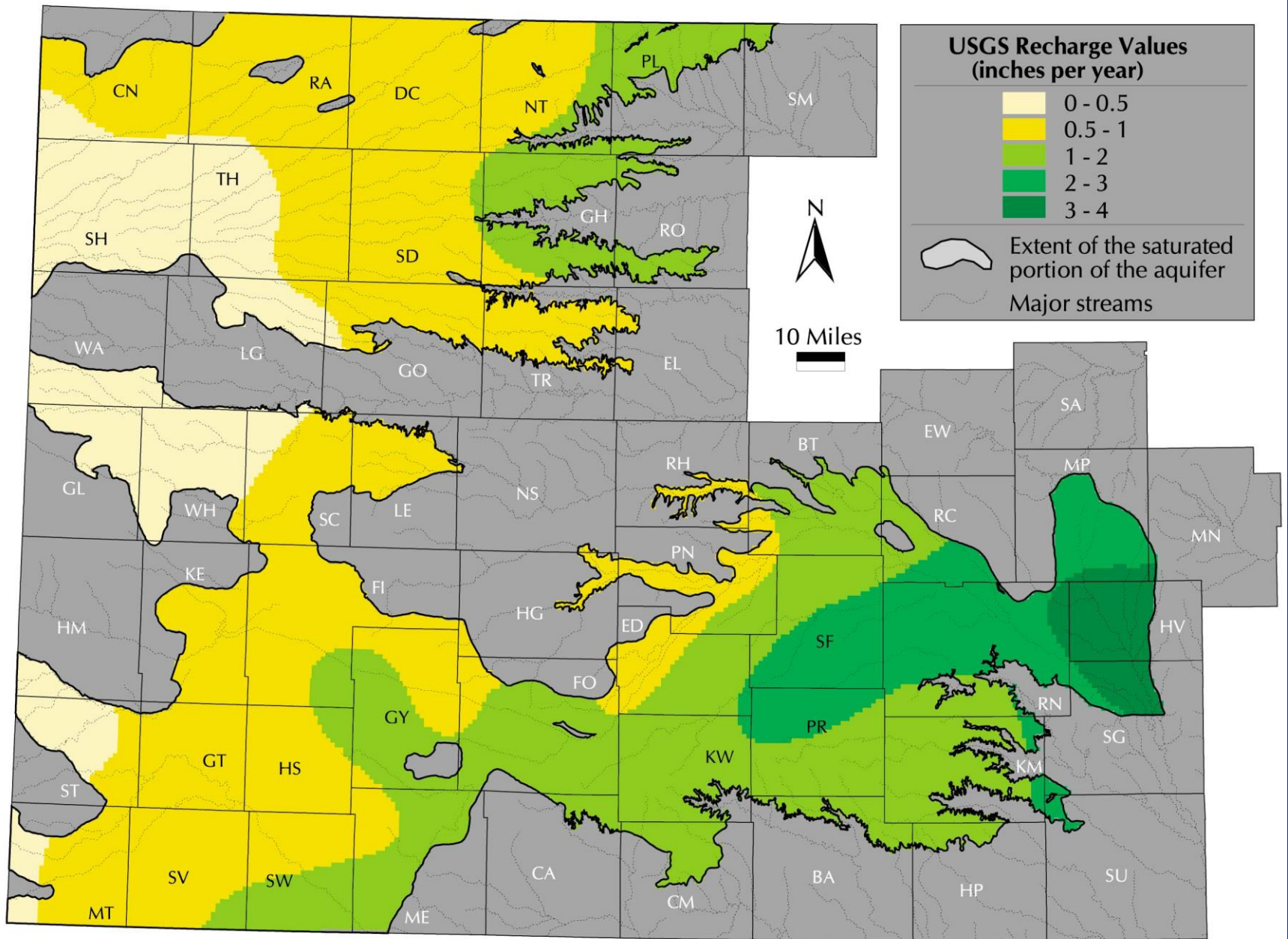
### Interpolated Change in Feet, Cooperative Water Level Network, 2017 to 2018\*



\*Results are based only on the cooperative network (KGS and KDA-DWR) and do not include sub-regional networks from the KGS, KDA-DWR or local GMDs.



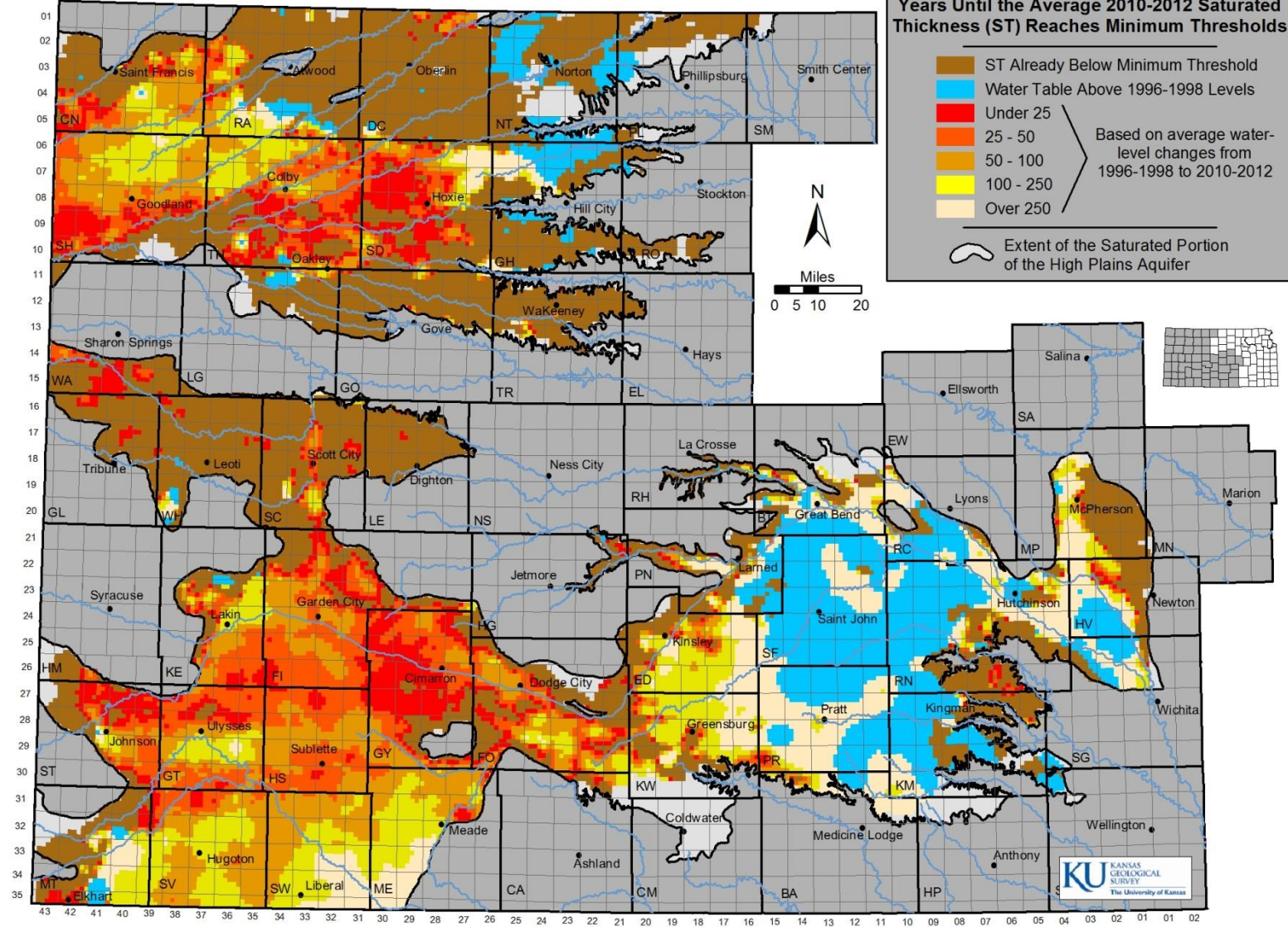


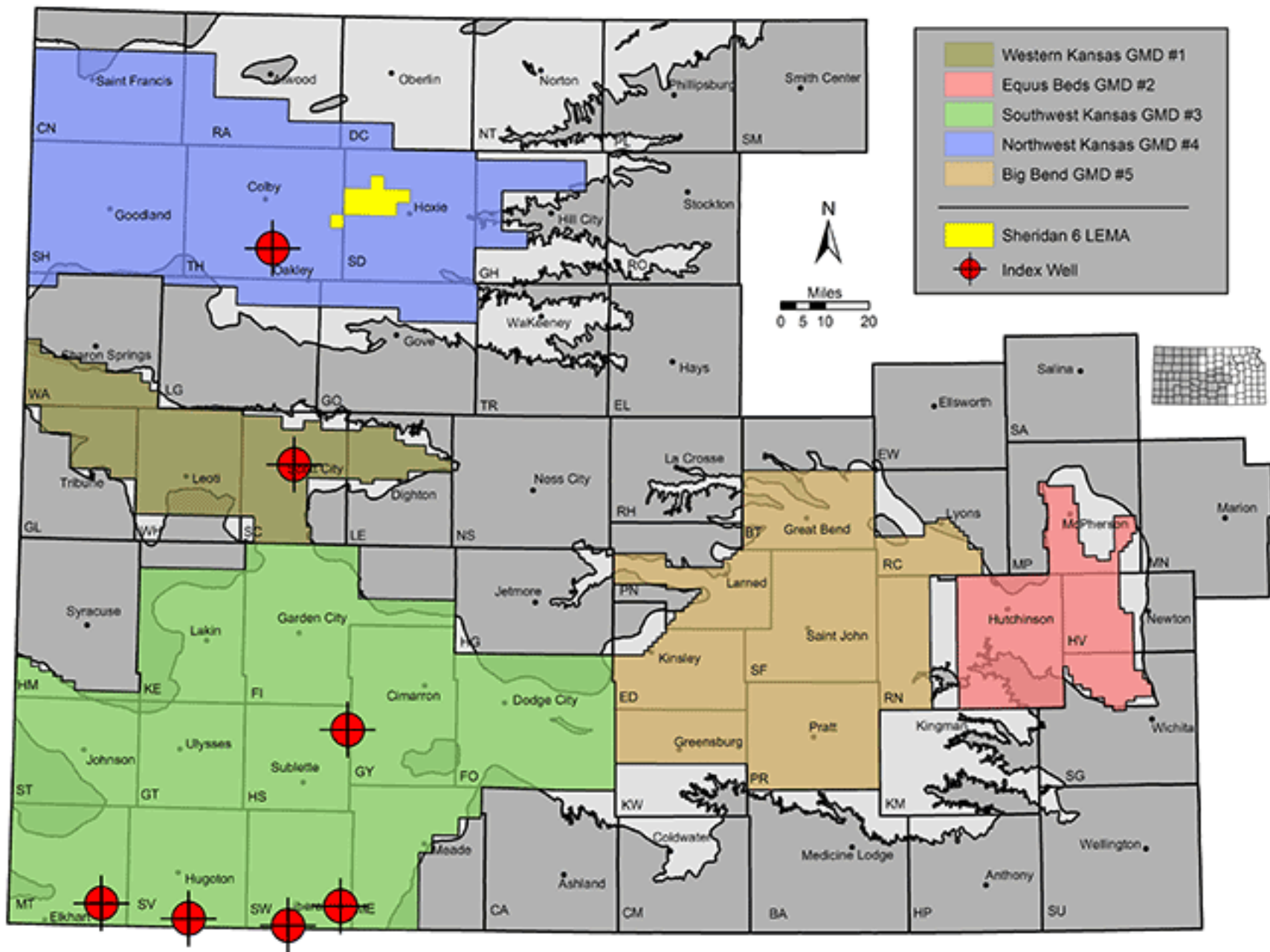




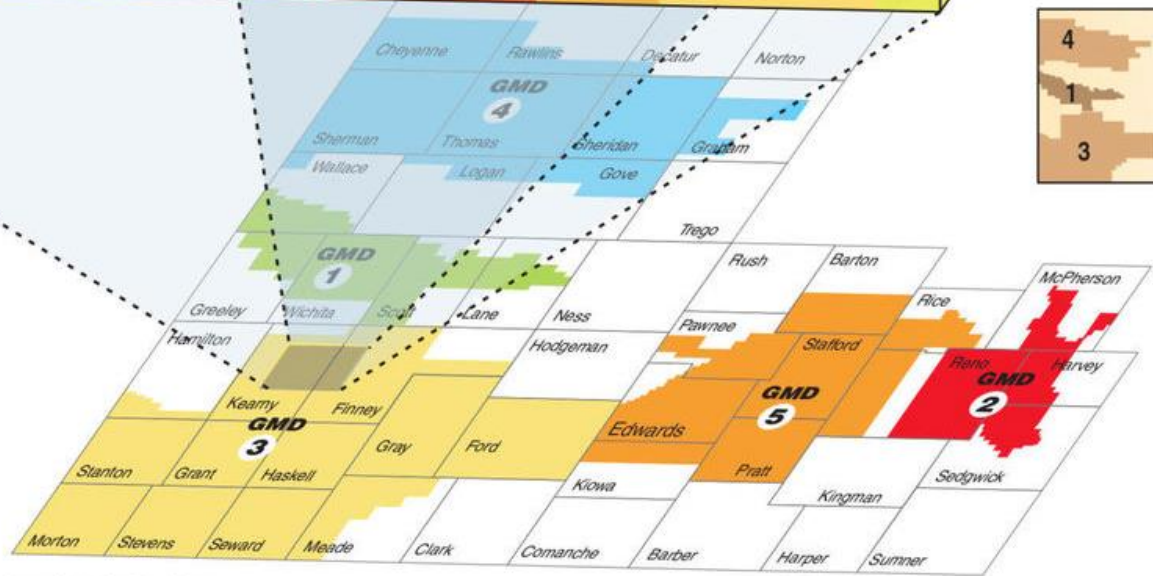
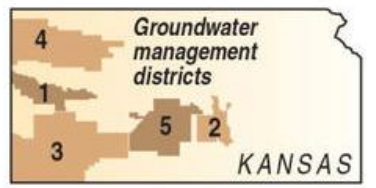
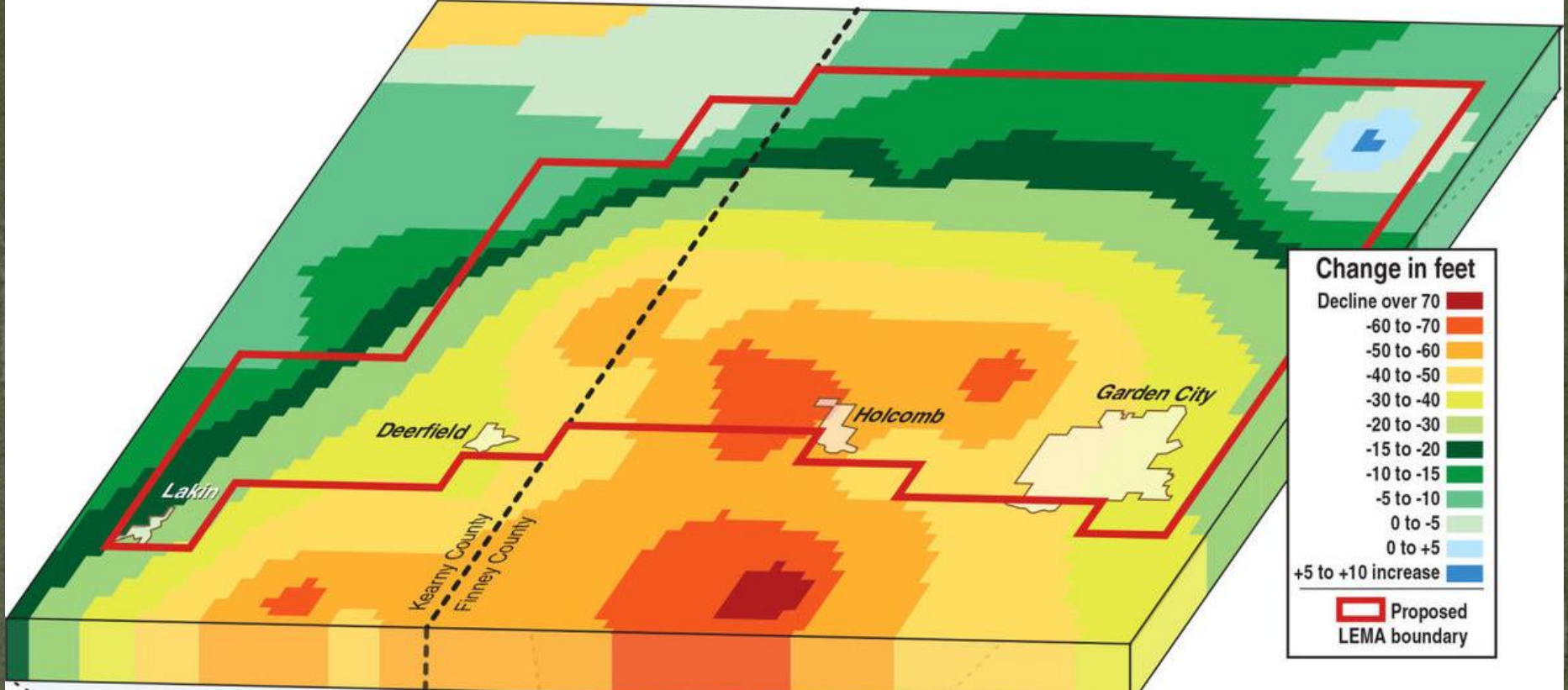
# Estimated Usable Lifetime- 400 gpm Well Yields Threshold

Estimated Usable Lifetime for the High Plains Aquifer in Kansas (Based on ground-water trends from 1996-1998 to 2010-2012 and the minimum saturated thickness required to support well yields at 400 gpm under a scenario of 90 days of pumping with wells on 1/4 section)





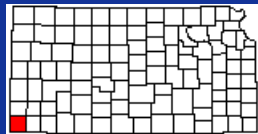




Source: Kansas Geological Survey

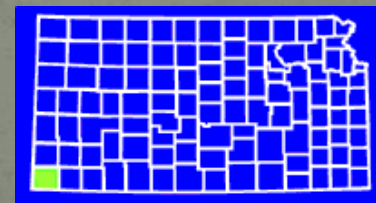
Jim Heck/The Hutchinson News





Point of Rocks, Morton County





Ogallala Formation,  
Morton County





Big Basin, Clark County



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Rex Buchanan

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Director Emeritus

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