The Changing Face of Kansas

Required credit line: Photography by George Jerkovich. TERM OF USE: UNLIMITED, NO RESTRICTIONS.

Created by:

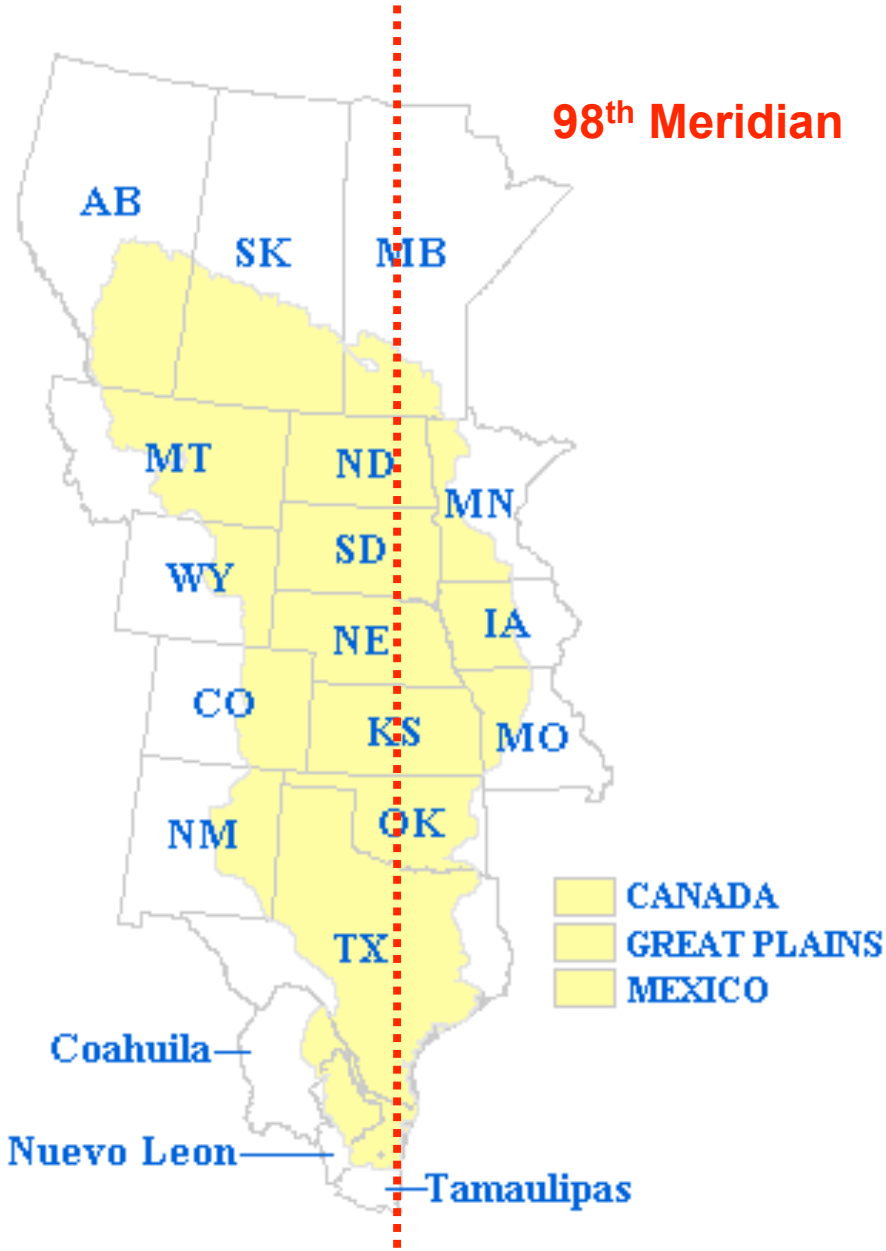
Michael Hayden, former Secretary of the Kansas Department of Wildlife and Parks & Kansas Governor 1987-91

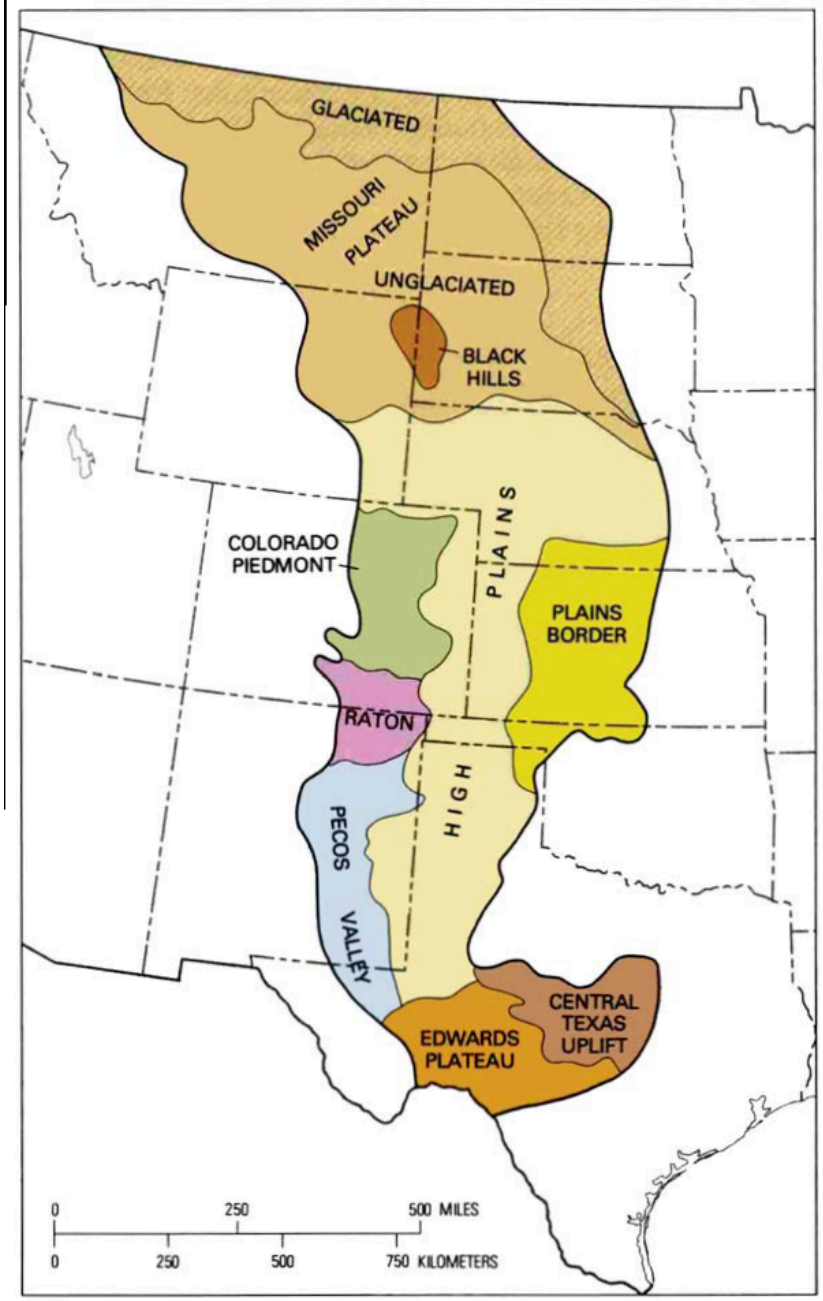
(modified and updated by Don Steeples, May 2011)

KANSAS as big as you think℠

KANSAS WILDLIFE & PARKS

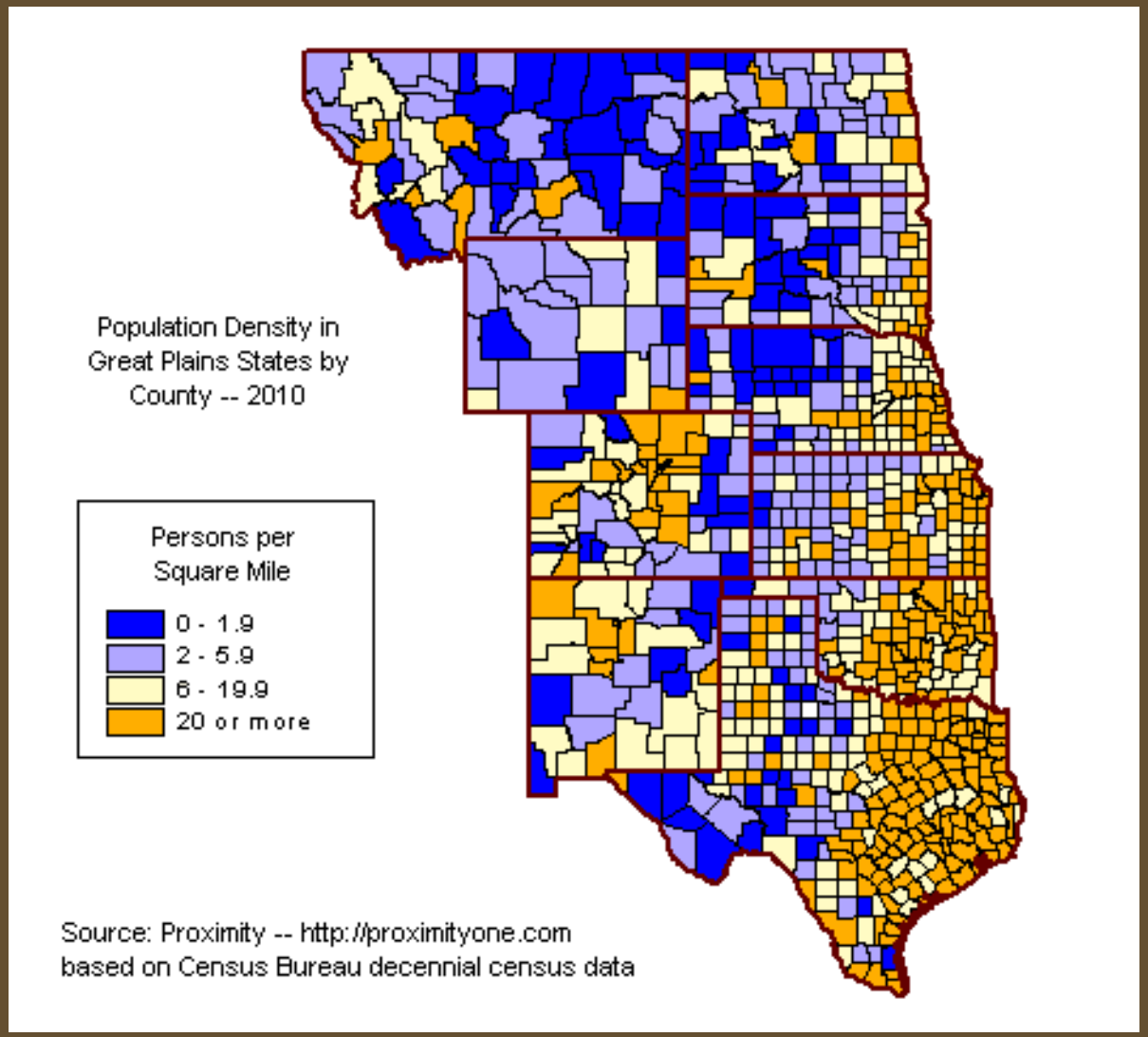
The Great Plains



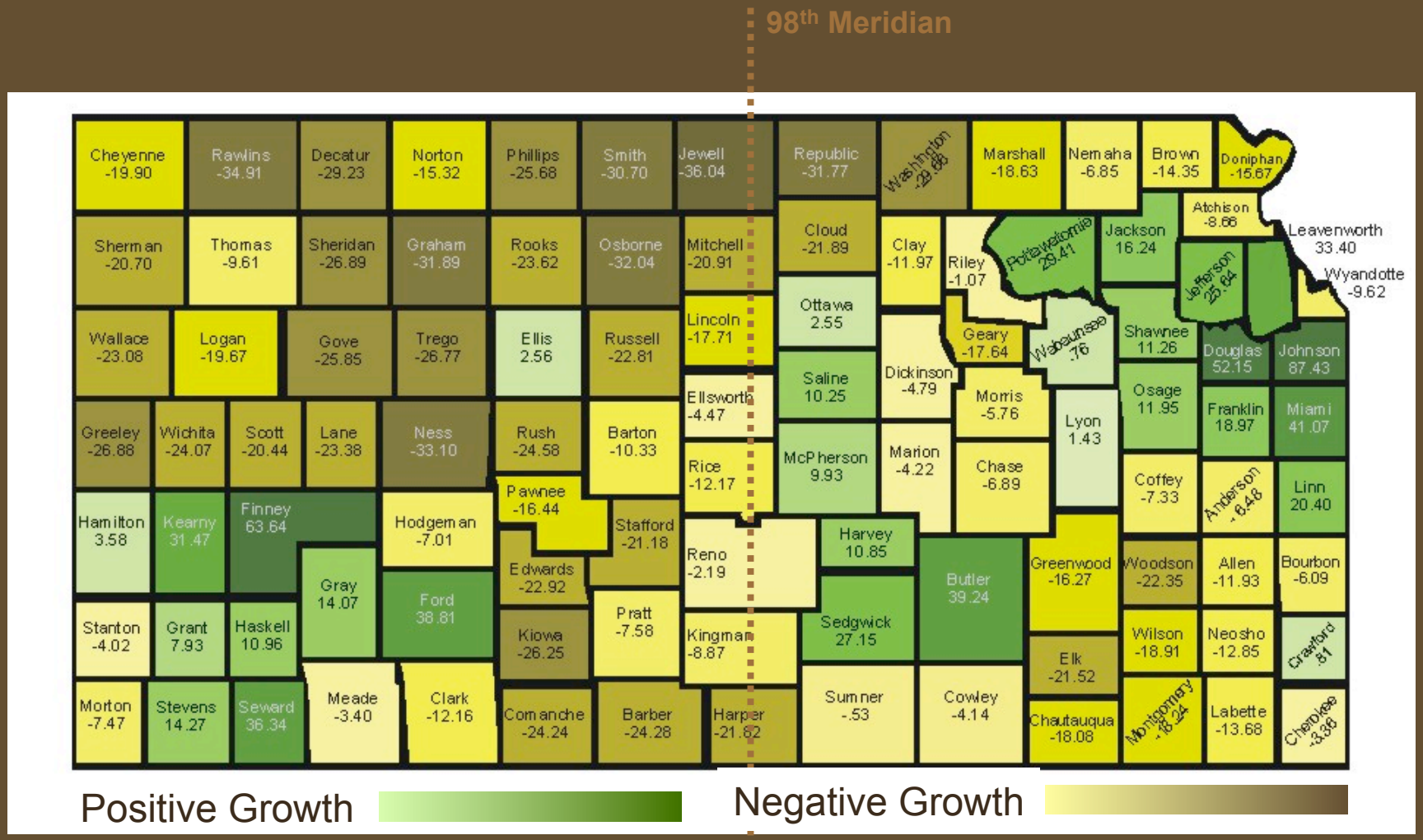


Source: Trimble, D., U.S. Geological Survey, Geological Survey Bulletin 1493, 1980.

Population Density in Great Plains States by County—2010

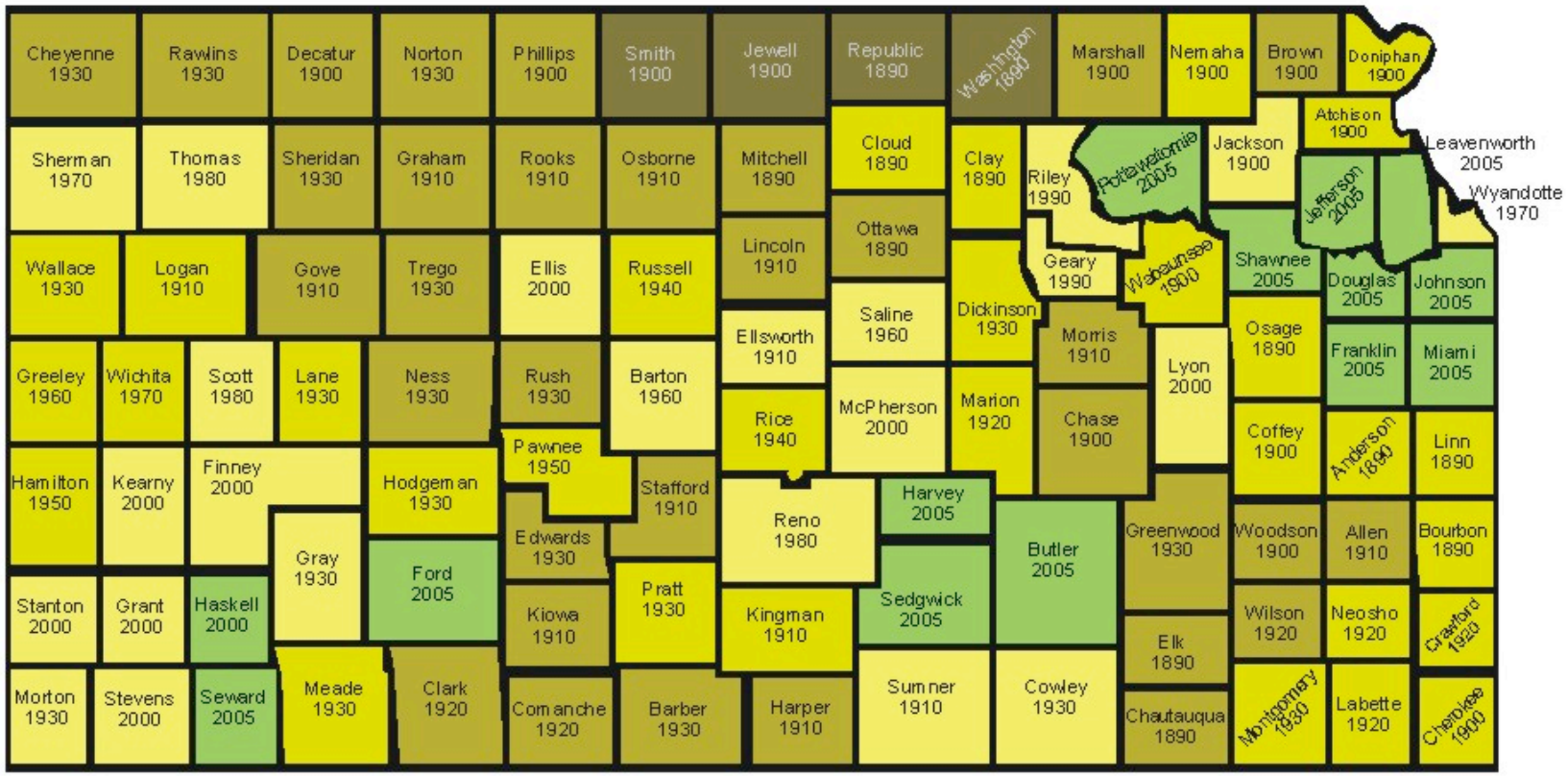


Percentage Change in Population 1980-2005



Map data from www.census.gov

Peak Population 1890 - 2005



Increase in Population

Under 25% Decrease

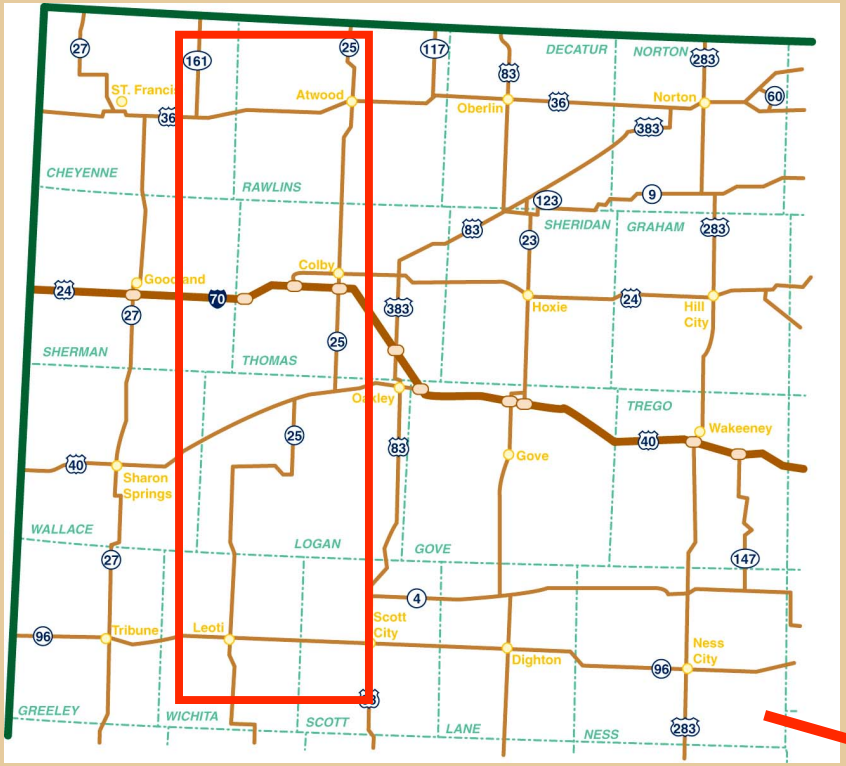
25% - 50% Decrease

50% - 70% Decrease

Over 70% Decrease

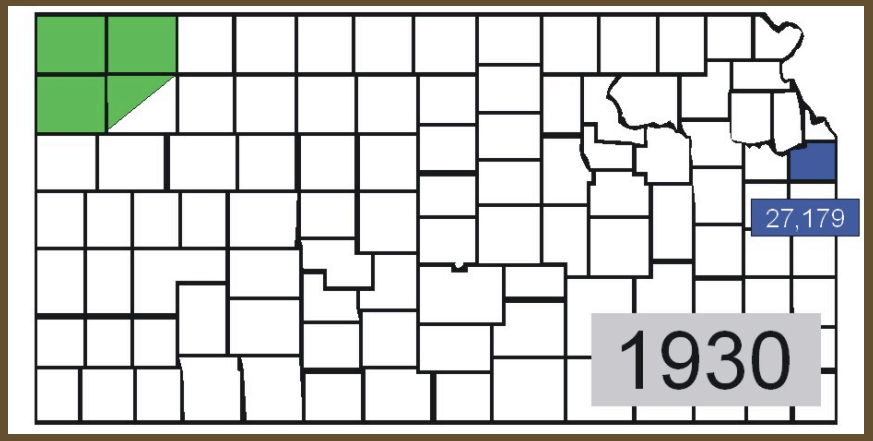
Population Change 1980-2005

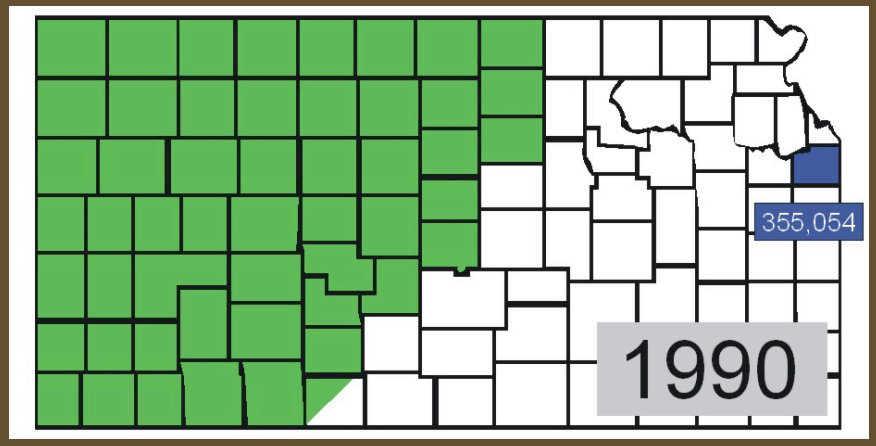
(select NW Kansas counties)

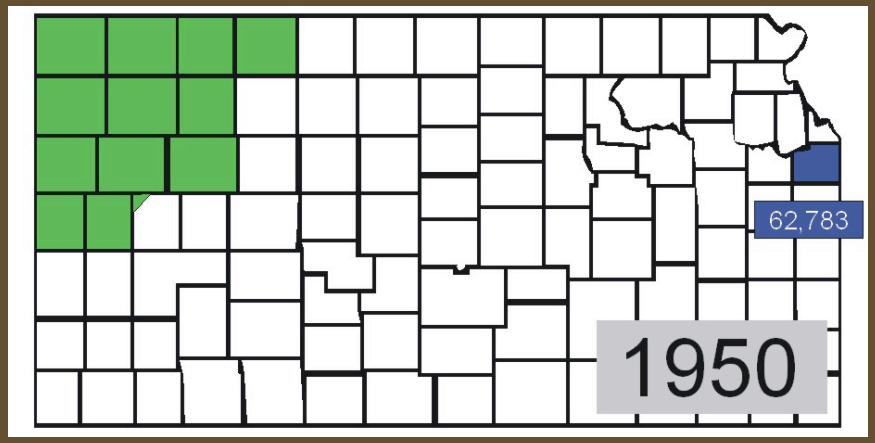


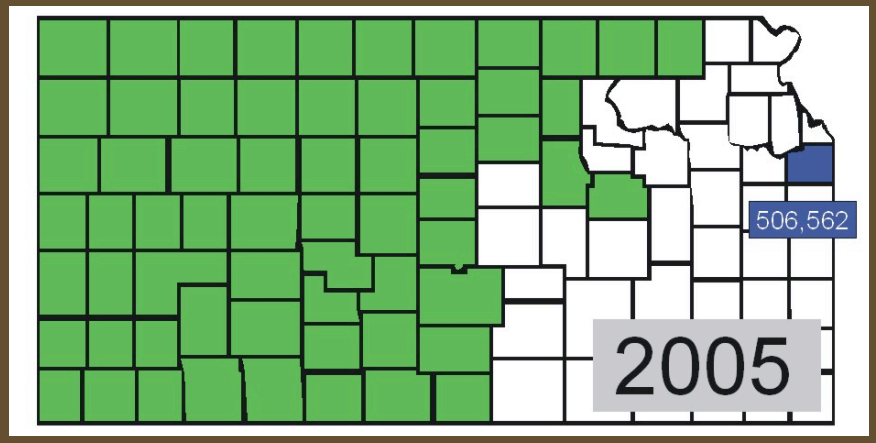
	1980	2000	2010	% Change
Rawlins	**4,105**	**2,966**	**2,519**	**-39%**
***Atwood**	***1,665***	***1,279***	***1,194***	**-28%**
Thomas	**8,451**	**8,180**	**7,900**	**-7%**
***Colby**	***5,544***	***5,450***	***5,387***	**-3%**
Wichita	**3,041**	**2,531**	**2,234**	**-27%**
***Leoti**	***1,869***	***1,598***	***1,534***	**-18%**

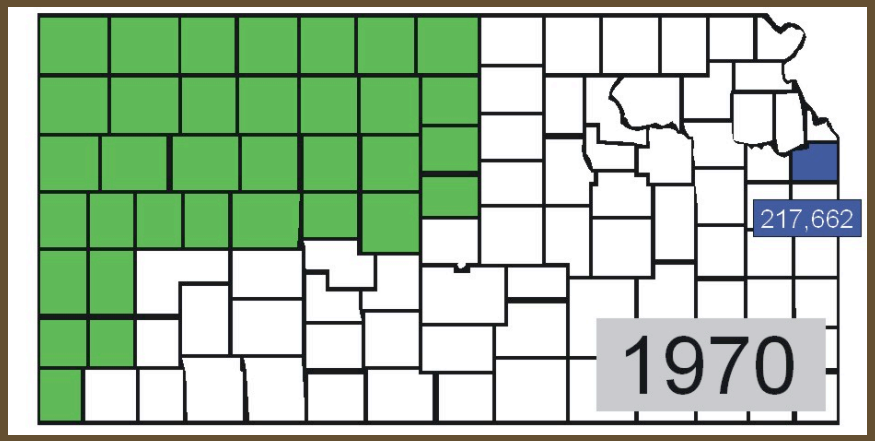
*Atwood, Colby and Leoti are county seat towns situated along State Highway 25 in western Kansas. Of the three, only Colby is also located on an interstate highway (I-70) and has a local community college. Both of these factors have likely contributed to a much less severe population decline.









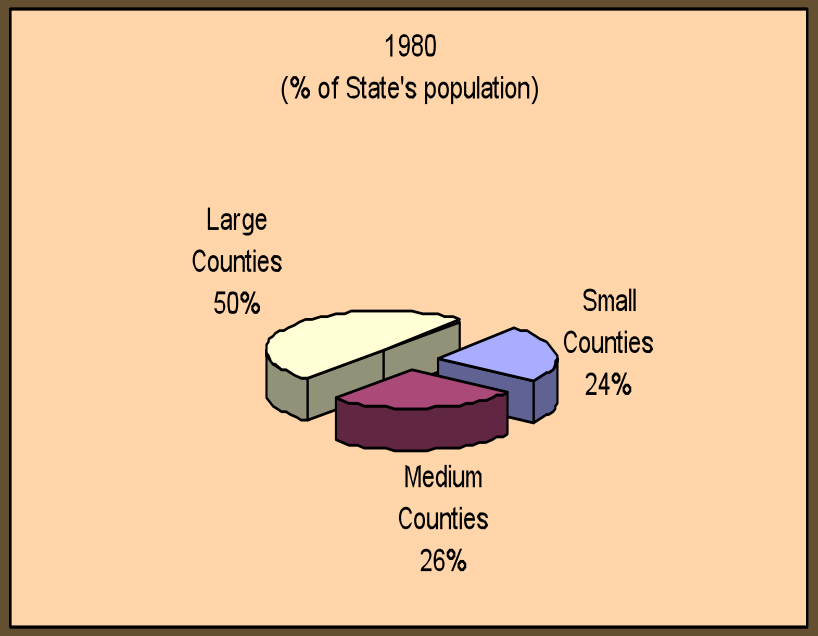


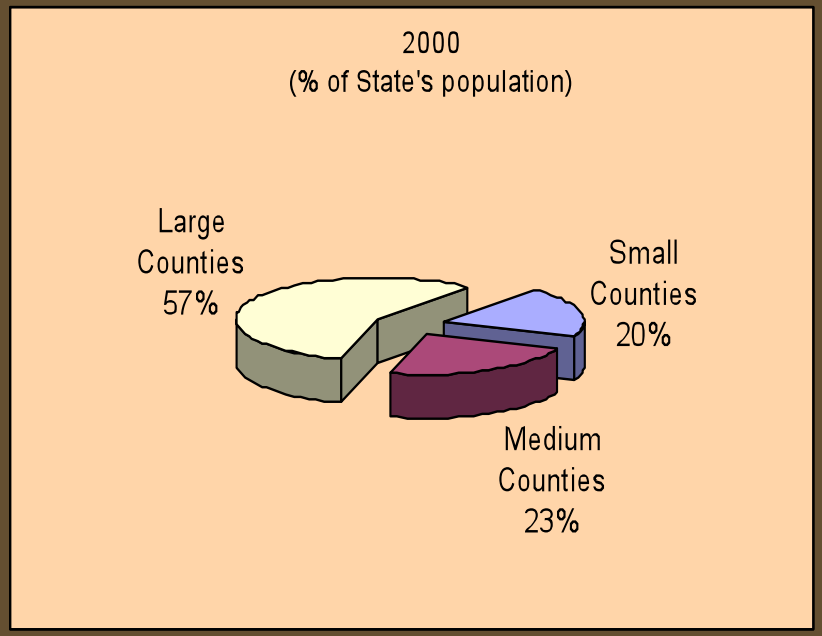
Rural Population Decline and Urban Population Growth 1930-2005:

Starting in northwest Kansas, the number of counties it takes to equal the population of Johnson County

Data for these maps taken from www.census.gov

Increasing Urbanization of Kansas Population





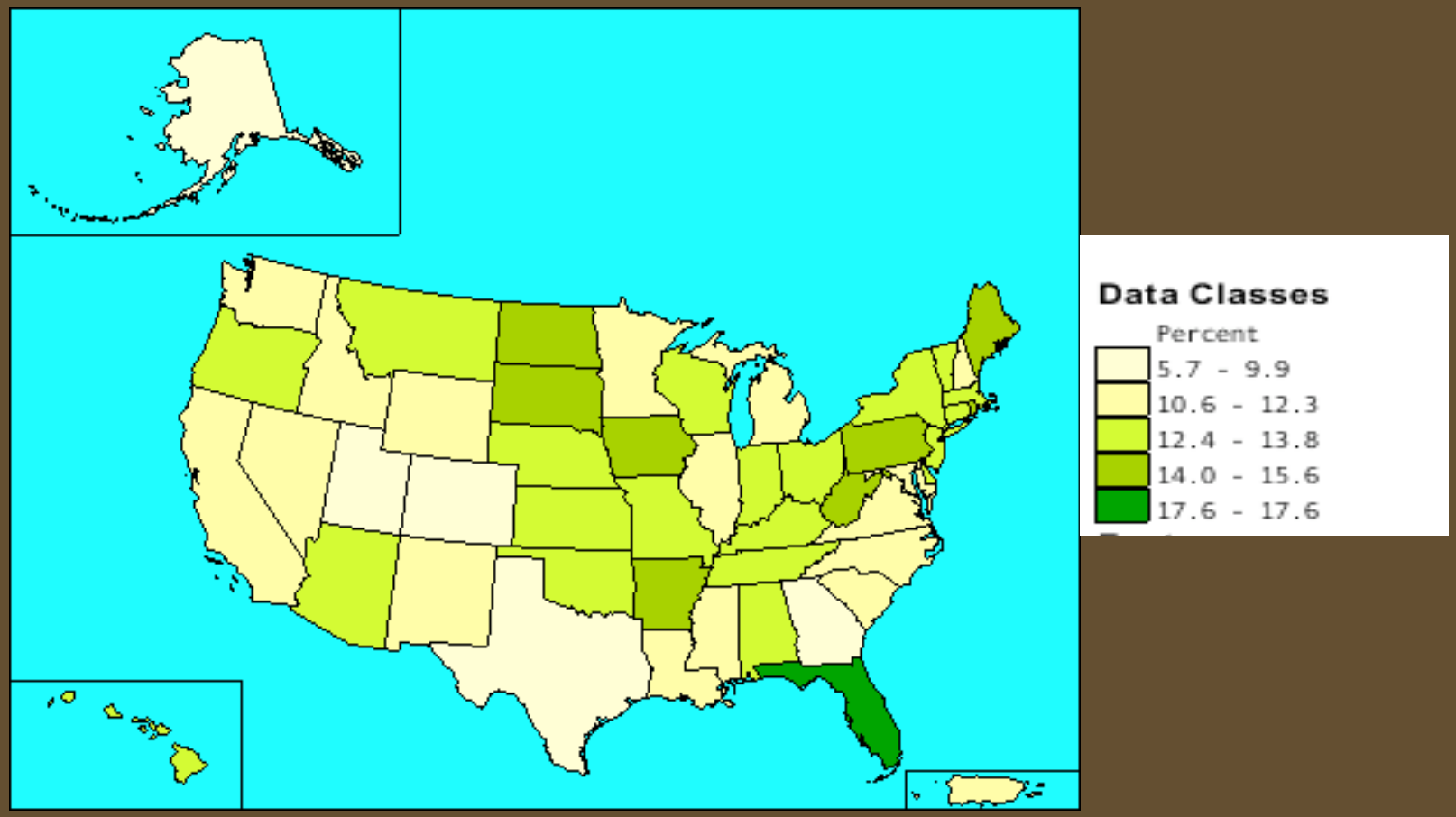
Kansas has 9 Large Metro Counties & 78 Small Counties. Since 1990 nearly 90% of the state's population growth has occurred in the Large Metro Counties, and from 1988 to 1998 nearly 75% of the state's employment increase was in the same counties. In the Medium Counties, the mid-size communities, such as Hays, Salina, Hutchinson, and Manhattan, are growing, but the rural populations are declining.

Urbanization of Kansas Population

Population	Rural *	Urban *	Total
Year			
1980	1,066,719	1,297,517	2,364,236
1990	1,031,142	1,446,432	2,477,574
2000	1,044,126	1,644,292	2,688,418
2010	1,031,070	1,822,048	2,853,118

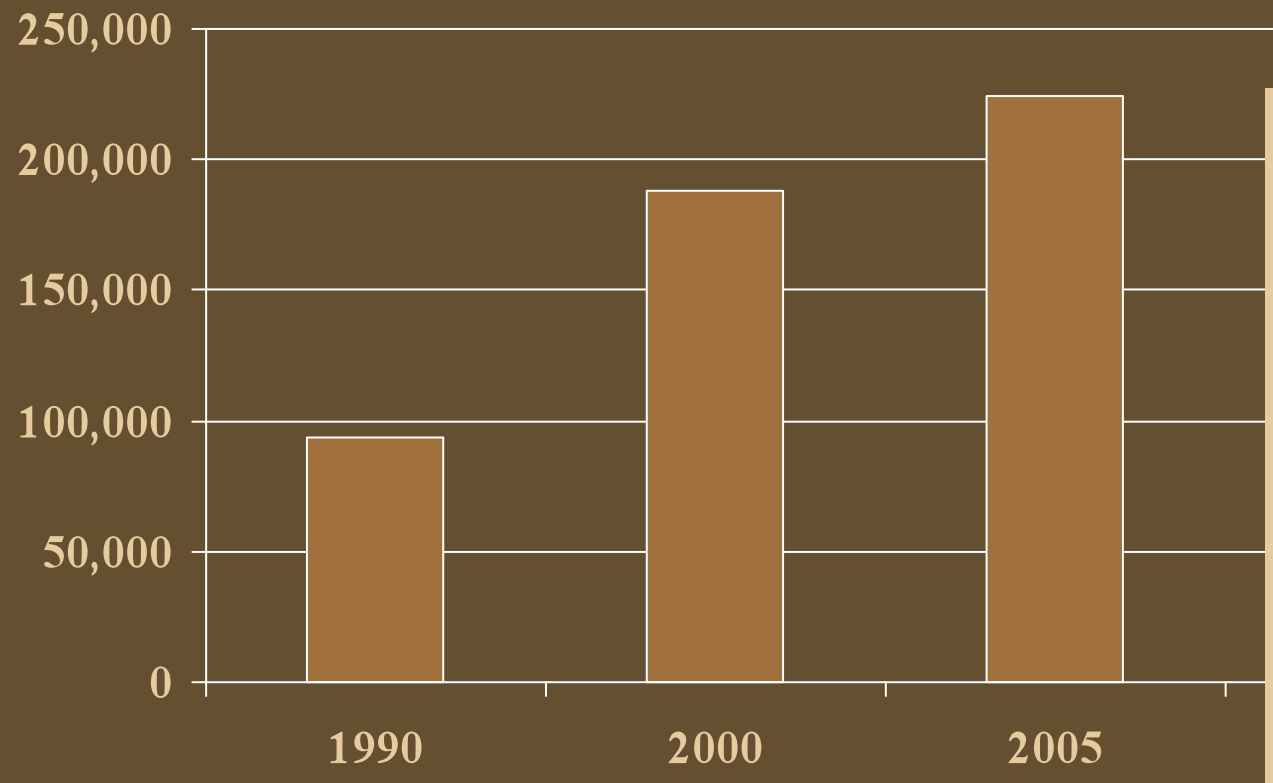
* Urban and rural (metro and nonmetro) definitions are based on the Office of Management and Budget (OMB) June 2003 classification.

Aging of Great Plains Population



As of 2009, nationwide the percentage of the population 65 and over was 12.6%, while Kansas was 13%. Within Kansas, the counties with the greatest population loss in the previous decade also have the highest percentage of people 65 and over.

Hispanic Population of Kansas 1990-2009

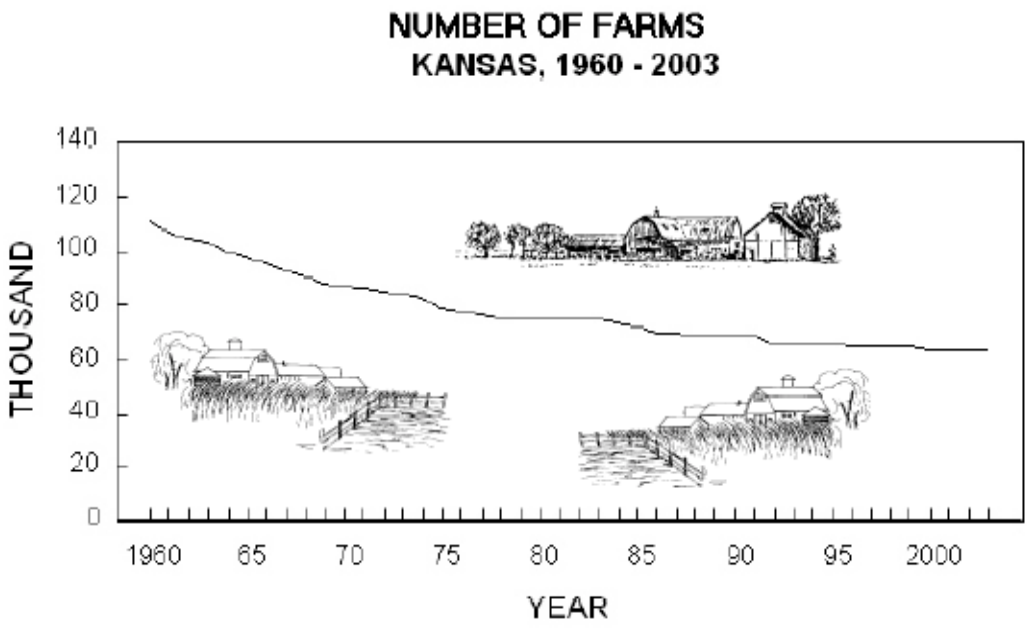


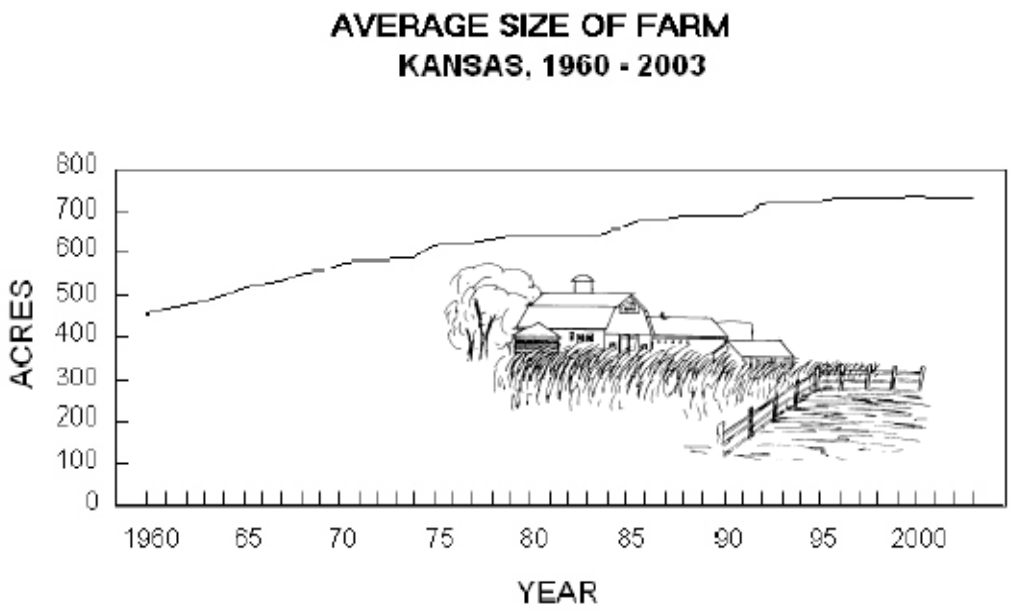
Kansas experienced a 239% increase in the Hispanic population from 1990 to 2005.

As of 2009, 8.8% of Kansas population was of Hispanic or Latino origin; 15.1% of US population was.

Data used for graph from http://factfinder.census.gov/

From 1960 to 2003 the number of farms in Kansas decreased 41% from 110,000 to 64,500. However, the average size of the Kansas farm increased from 456 acres to 732 acres.



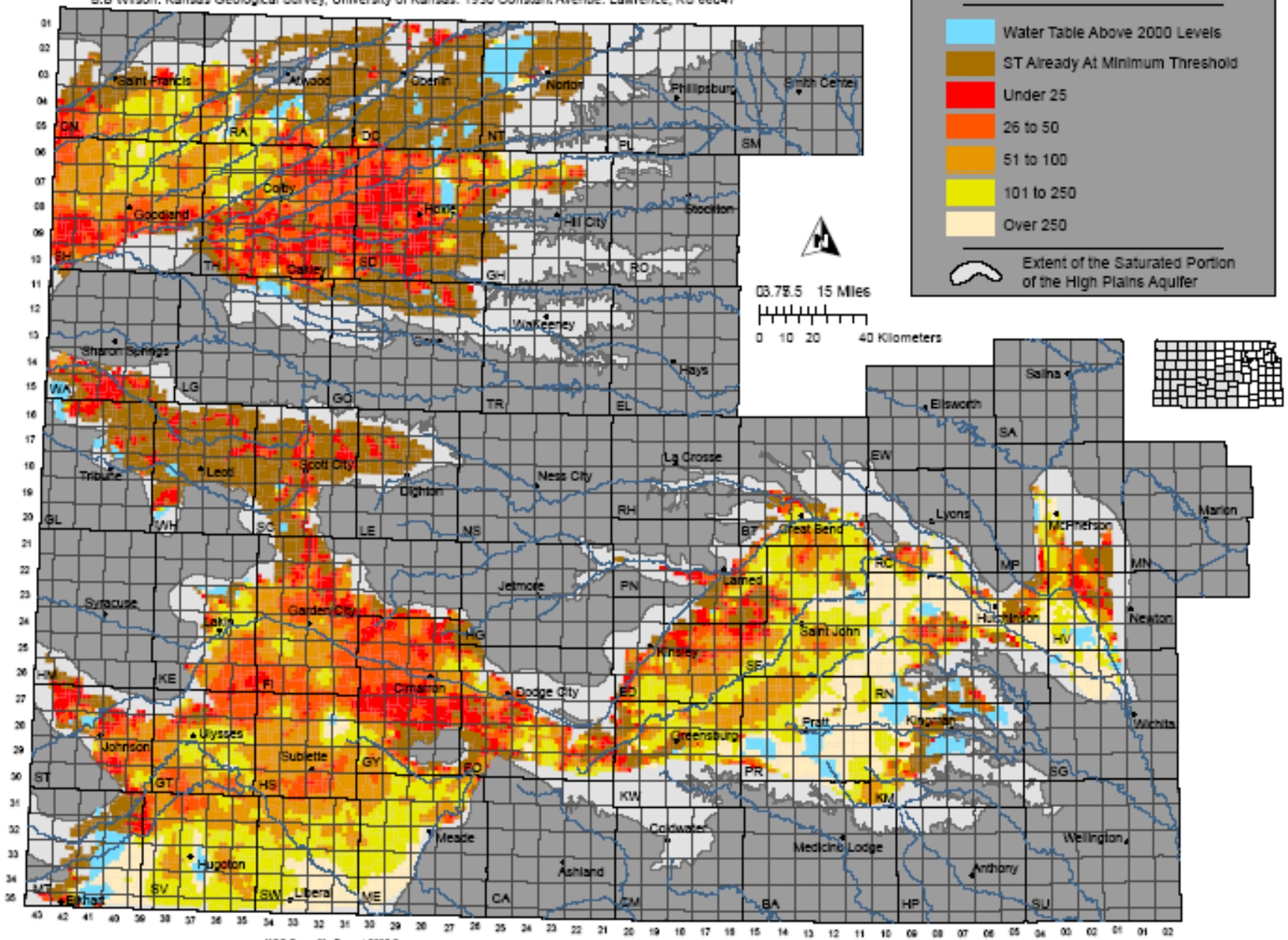


Extent of the Ogallala Aquifer in the Great Plains

Estimated Usable Lifetime for the High Plains Aquifer in Kansas

(Based on ground-water trends from 2000 to 2005 and the minimum saturated thickness required to support 400 gpm well yields under a 90 day pumping period with wells on 1/4 section)

B.B Wilson, Kansas Geological Survey, University of Kansas, 1930 Constant Avenue, Lawrence, KS 66047



Kansas Geological Survey
The University of Kansas
1930 Constant Avenue
Lawrence, Kansas 66047-3726
(785) 864-3965 http://www.kgs.ku.edu

KGS Open-file Report 2005-6.

The Kansas Geological Survey made a conscientious effort to ensure the accuracy of this report. However, the Kansas Geological Survey does not guarantee this document to be completely free from errors or inaccuracies and disclaims any responsibility or liability for interpretations based on data used in the production of this document or decisions based thereon. This report is intended to make results of research available at the earliest possible date, but is not intended to constitute final or formal publication.

Ground-water data obtained from the Water Information Storage and Retrieval Database (WIZARD) at http://www.kgs.ku.edu/Magellan/WaterLevels/index.html. Minimum ST threshold estimates based on results in KGS OFR 2002-26C which can be obtained at http://www.kgs.ku.edu/HighPlains/OFR/2002_26C.pdf.

Projection: Lambert Conformal Conic
Standard Parallels: 33 and 45 degrees North
Central Meridian: -98.25 degrees West
Latitude of Origin: 38 degrees North

April 22, 2005

Ark River Near Colorado Border

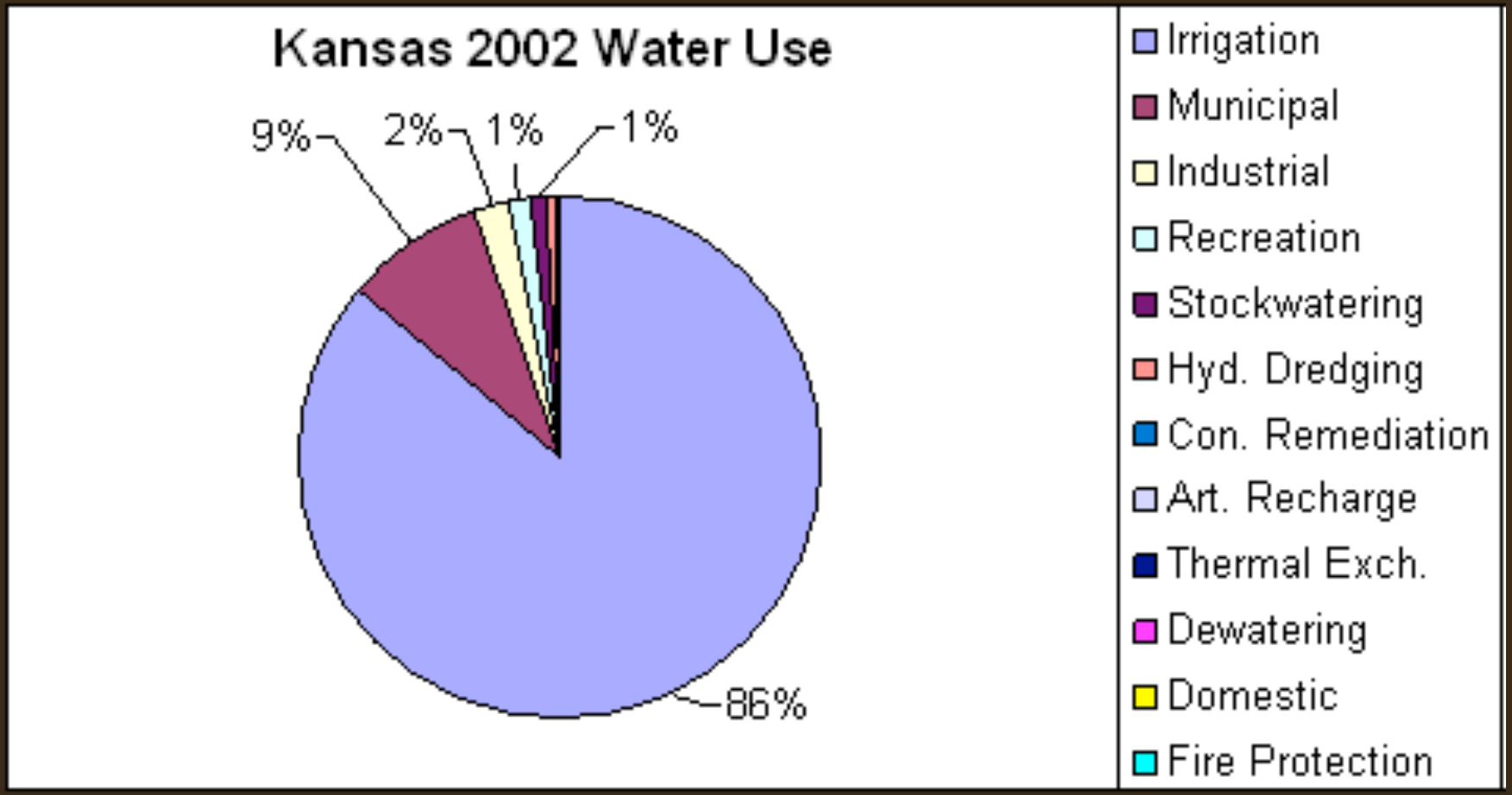
Average Annual Streamflow (cfs) 2000-2006
Compared with Streamflow During Four Previously Documented Droughts

Gage Location	2000-06	1929-41	1952-57	1962-72	1974-82
Prairie Dog Creek near Woodruff	**5.16**	n/a	43.30	20.30	6.86
Beaver Creek near Cedar Bluffs	**0.12**	n/a	1,734.00	16.30	3.59
Republican River near Hardy, NE	**92.00**	734.00	33.00	24.90	18.40
Big Creek near Hays	**13.47**	n/a	33.20	24.90	18.40
Smoky Hill River at Ellsworth	**110.00**	242.00	201.00	223.00	176.00
N. Fork Solomon River at Portis	**46.40**	n/a	110.00	85.30	60.90
S. Fork Solomon River at Osborne	**21.50**	n/a	88.50	55.70	49.00
Solomon River at Niles	**159.00**	360.00	364.00	333.00	491.00
Saline River near Russell	**38.90**	n/a	59.5*	66.50	46.70
Kansas River at Wamego	**2,420.00**	3,201.00	2,948.00	4,176.00	5,310.00
Arkansas River near Kinsley	**20.40**	n/a	116.00	176.00	35.60
Pawnee River near Rozel	**9.82**	50.80	56.20	43.50	36.90

Note: Average Annual streamflows in bold indicate lowest value

**indicates incomplete data for period*

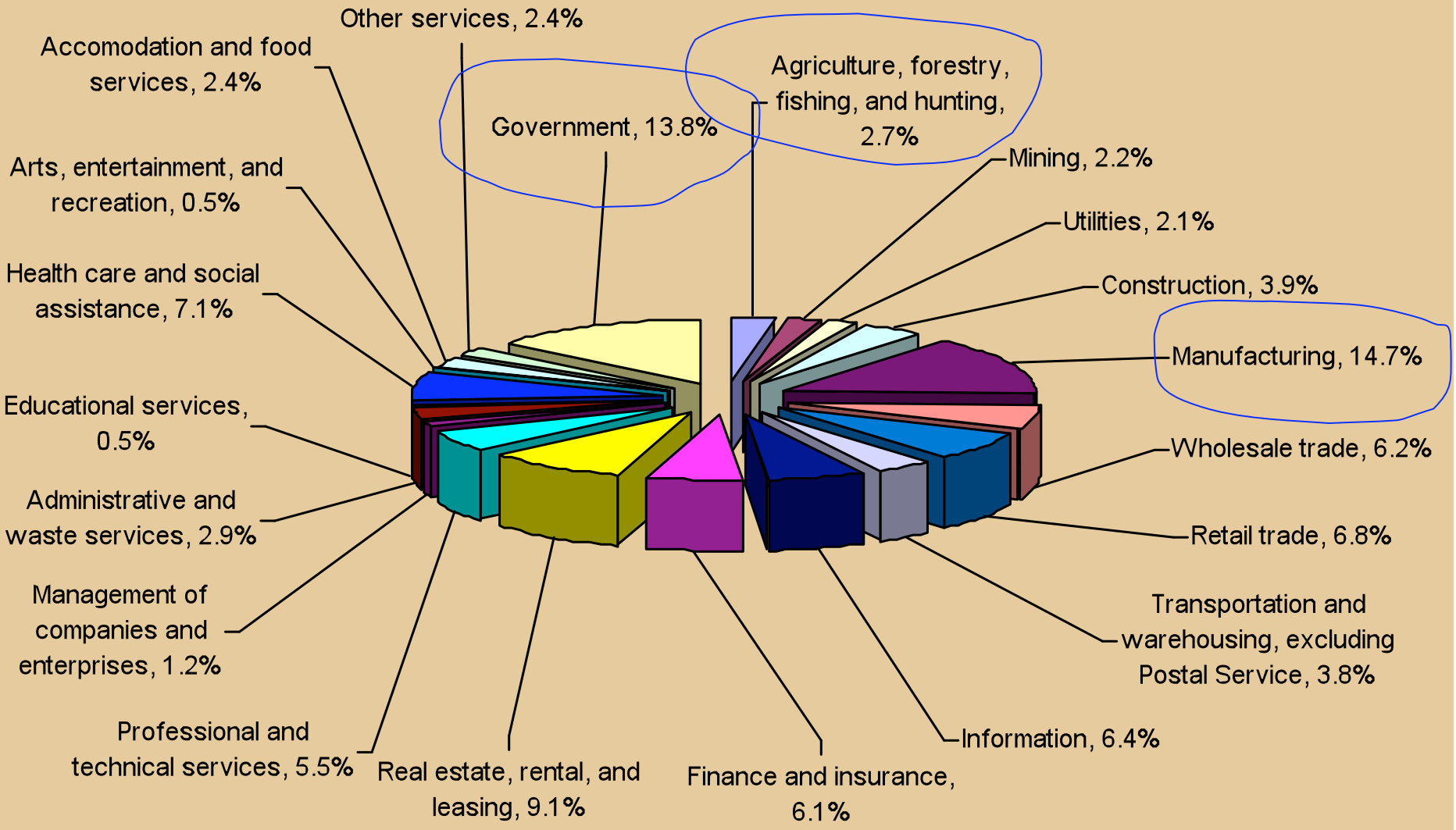
Water Use in Kansas

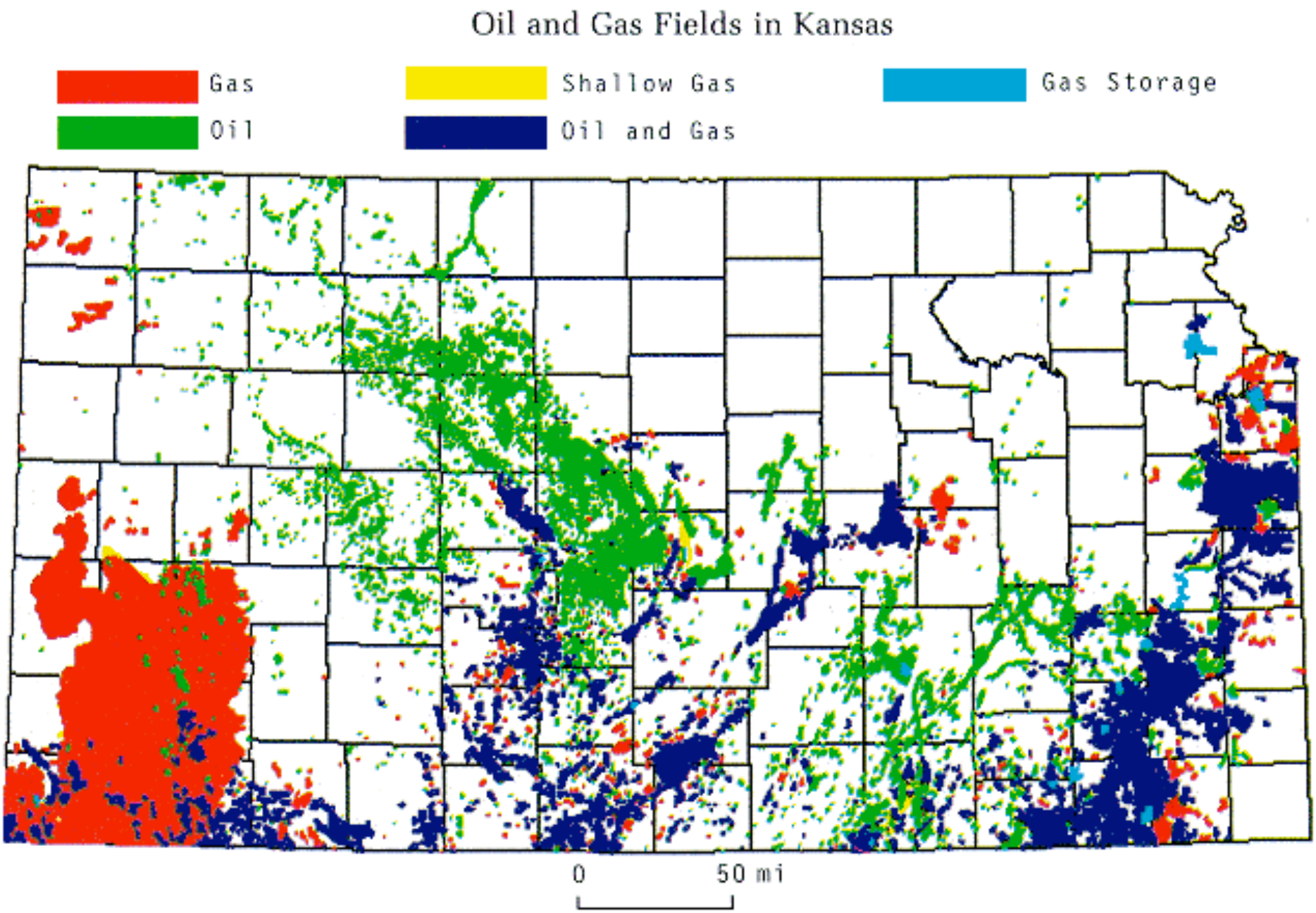


The majority of Kansas water,

86%, is used for crop irrigation.

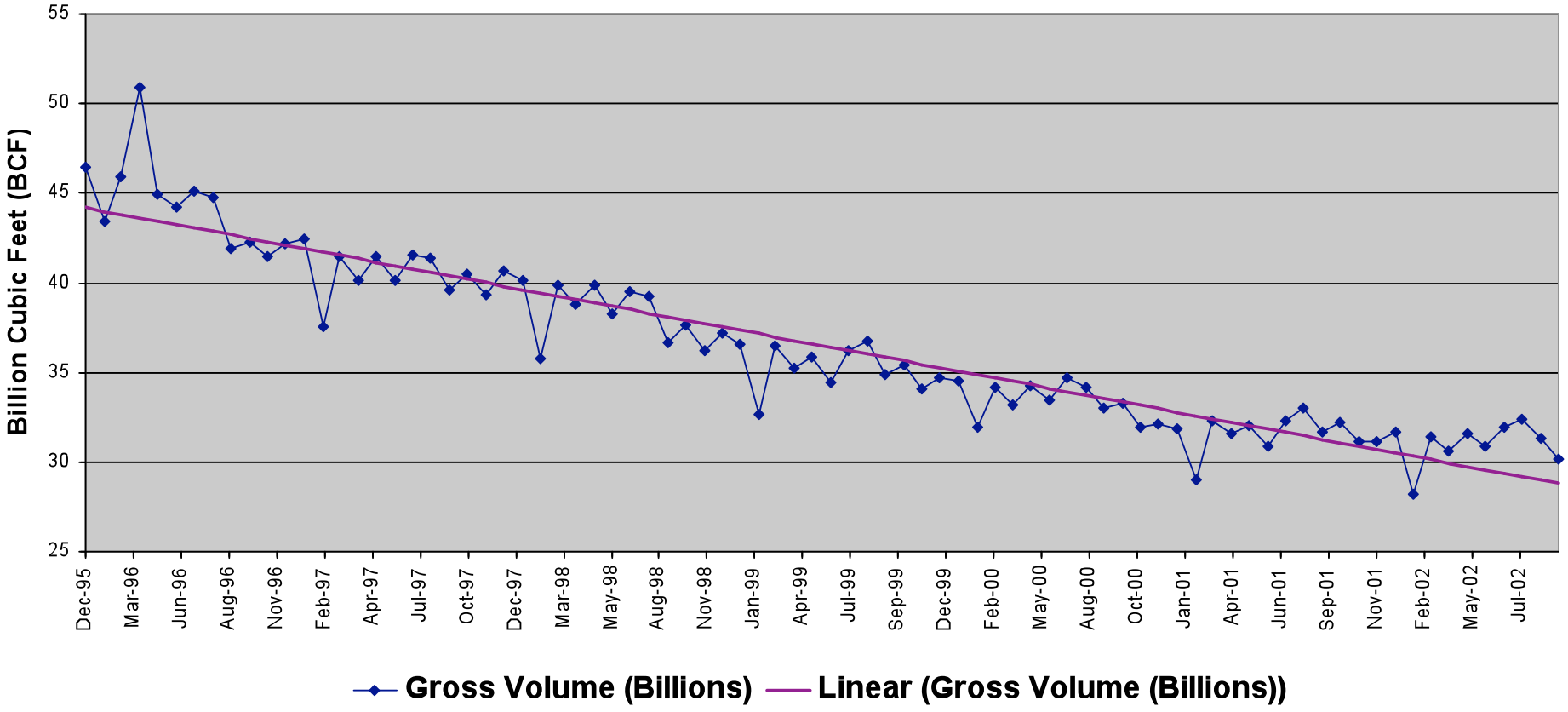
Percent Contribution to Kansas Gross State Product by Industry Sector, 2005





Source: http://www.kgs.ku.edu/Publications/Oil/primer09.html

Kansas Gas Production
1996-2002 By Month



Kansas ranked 9th in both oil production and gas production in 2010

Kansas oil production has increased in 7 of the last 11 years

40 million bbl of oil and 331 BCF of gas worth $4.3 billion in 2010

Generalized Geologic Map of Kansas

QUATERNARY SYSTEM (2.6 mya)

- Loess and river-valley deposits
- Sand dunes
- Glacial drift deposits
- Limit of glaciation in Kansas

NEOGENE SYSTEM (23 mya)

- Ogallala Formation

CRETACEOUS SYSTEM (145 mya)

JURASSIC SYSTEM (199 mya)

PERMIAN SYSTEM (299 mya)

CARBONIFEROUS SYSTEM

- PENNSYLVANIAN SUBSYSTEM (318 mya)
- MISSISSIPPIAN SUBSYSTEM (359 mya)

SILURIAN–DEVONIAN SYSTEM (444 mya)

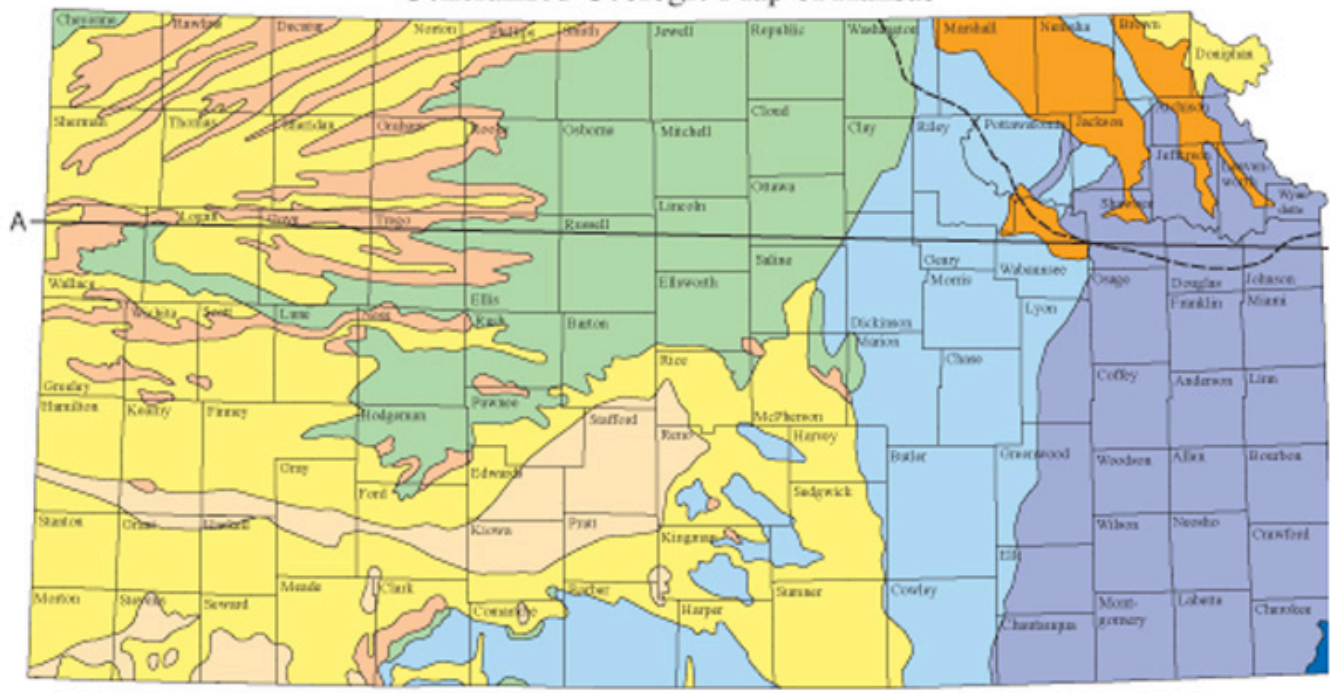
CAMBRIAN–ORDOVICIAN SYSTEM (542 mya)

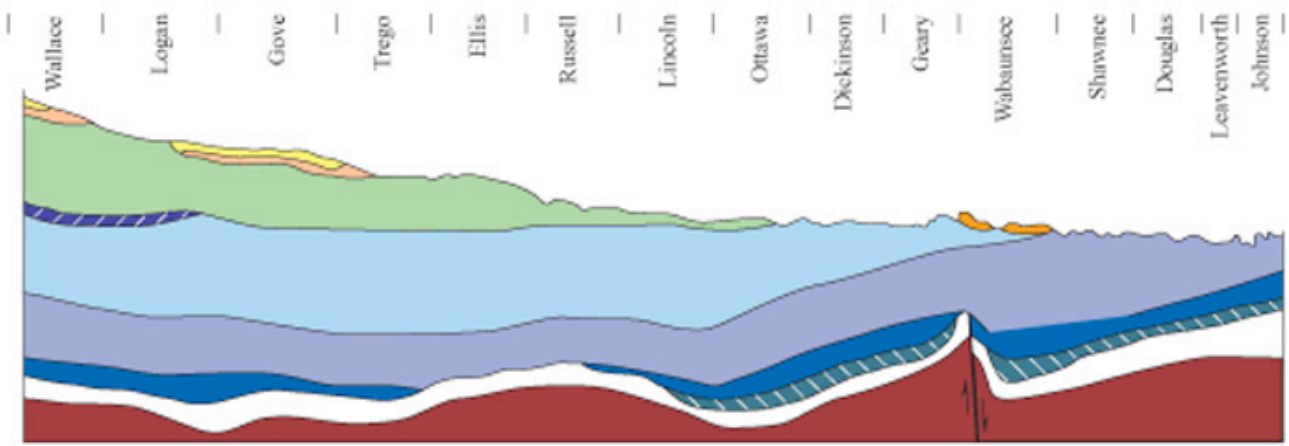
ARCHEAN–PROTEROZOIC SYSTEM (4,600? mya)
(previously referred to as Precambrian)

A—A′ Line of cross section

0 50 100 mi

0 50 100 km

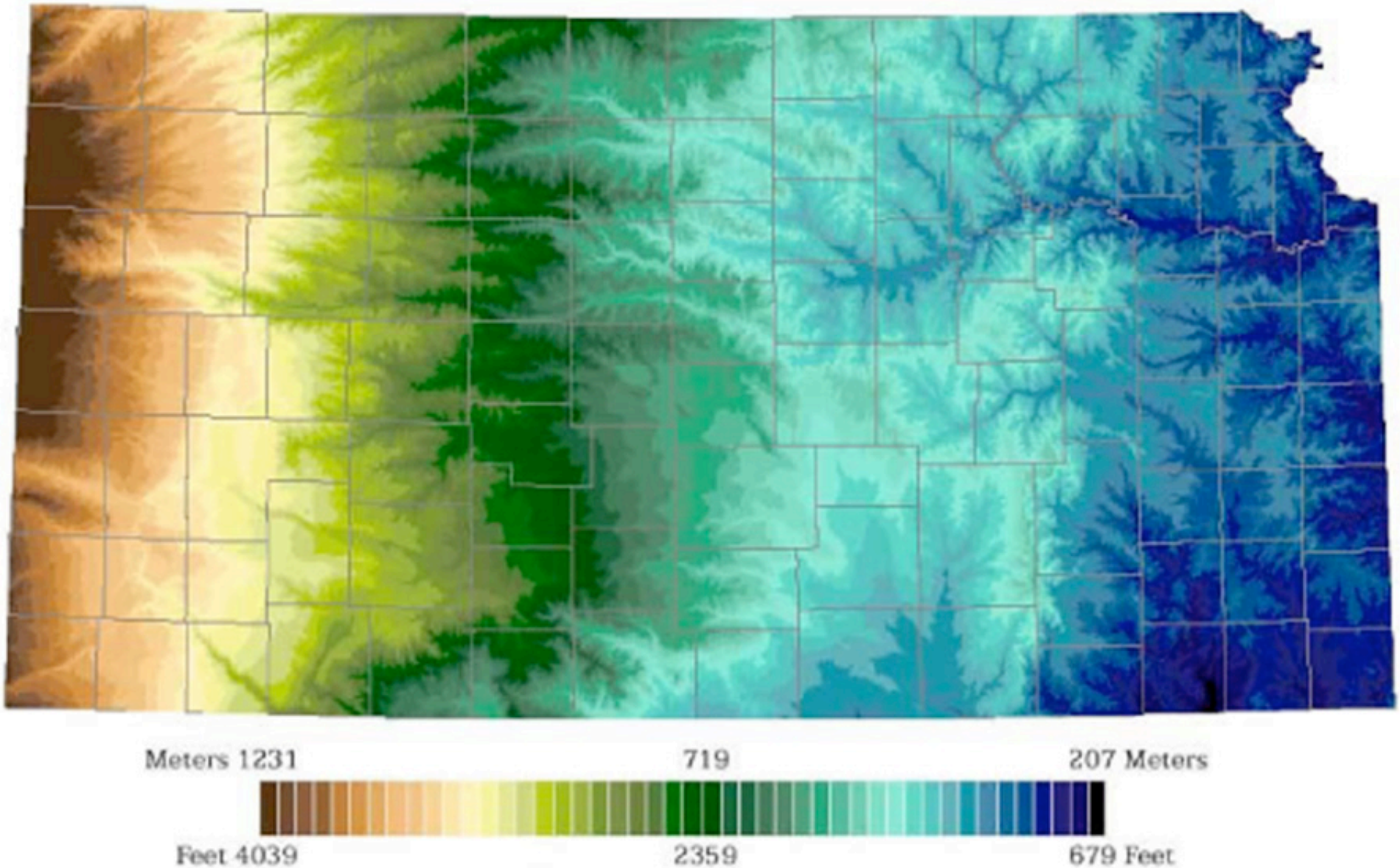




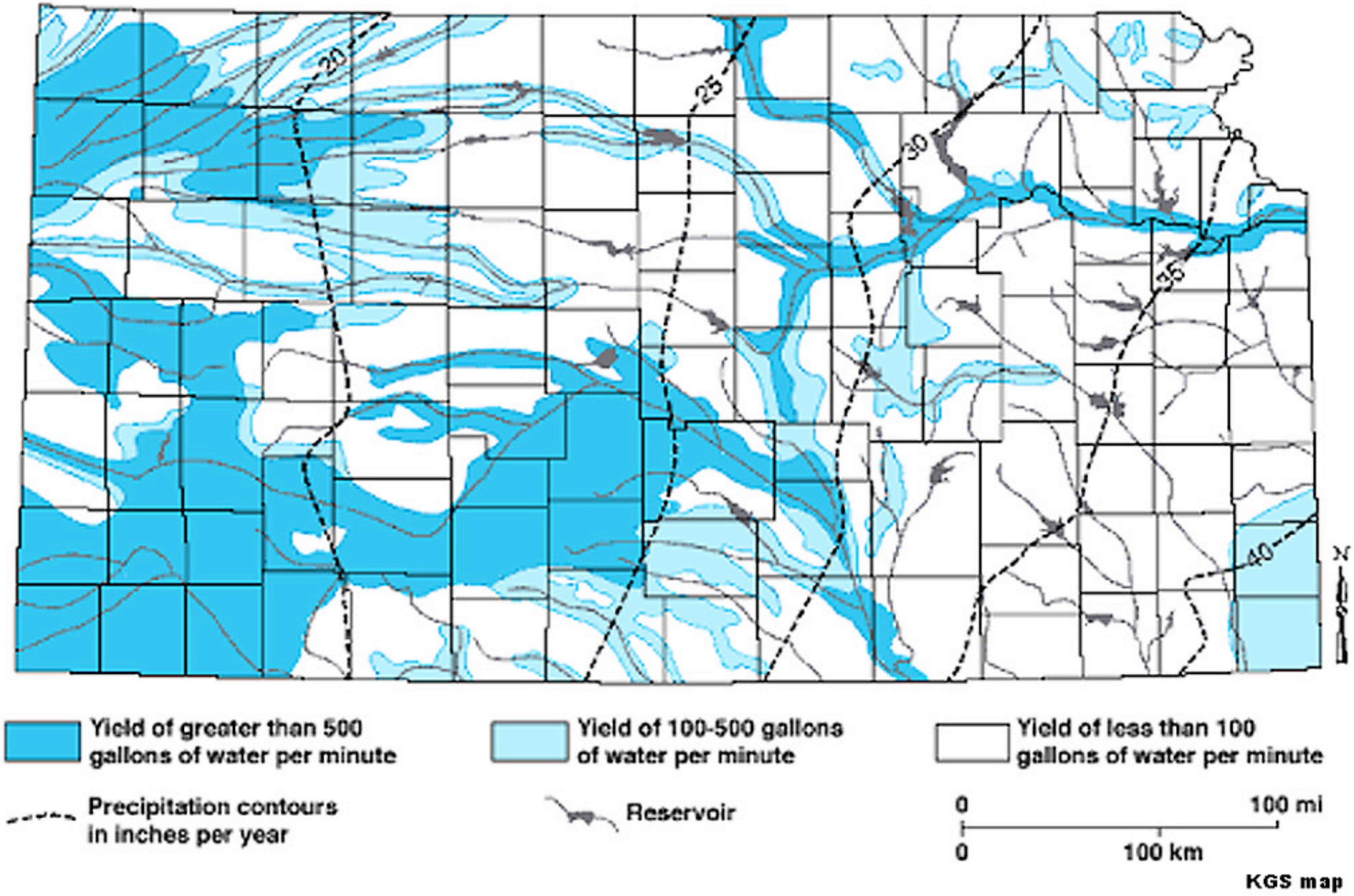
Geologic cross section below I–70

Kansas Geological Survey, KU www.kgs.ku.edu

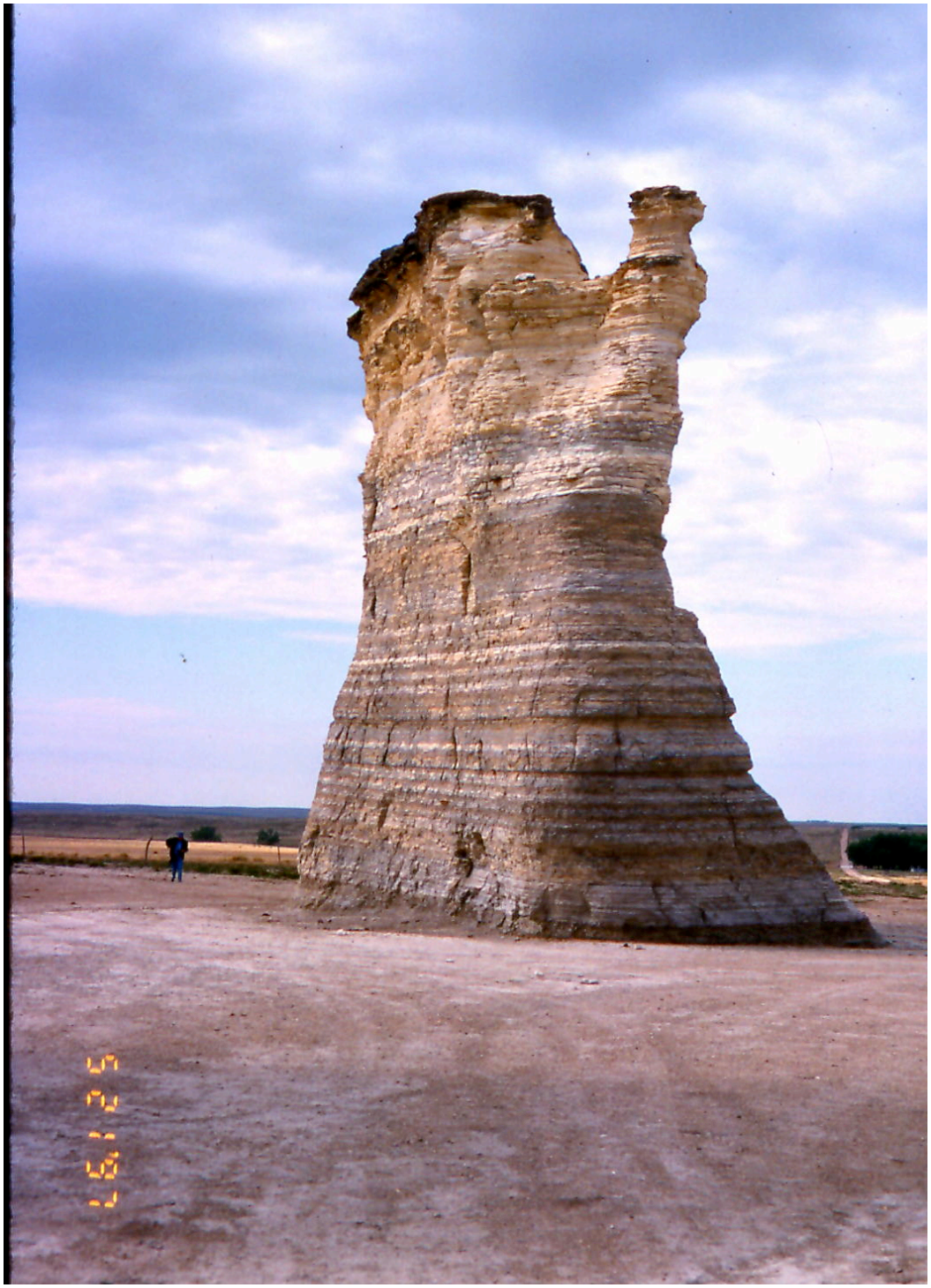
Color Elevation Map of Kansas



General Availability of Ground Water and Annual Precipitation in Kansas

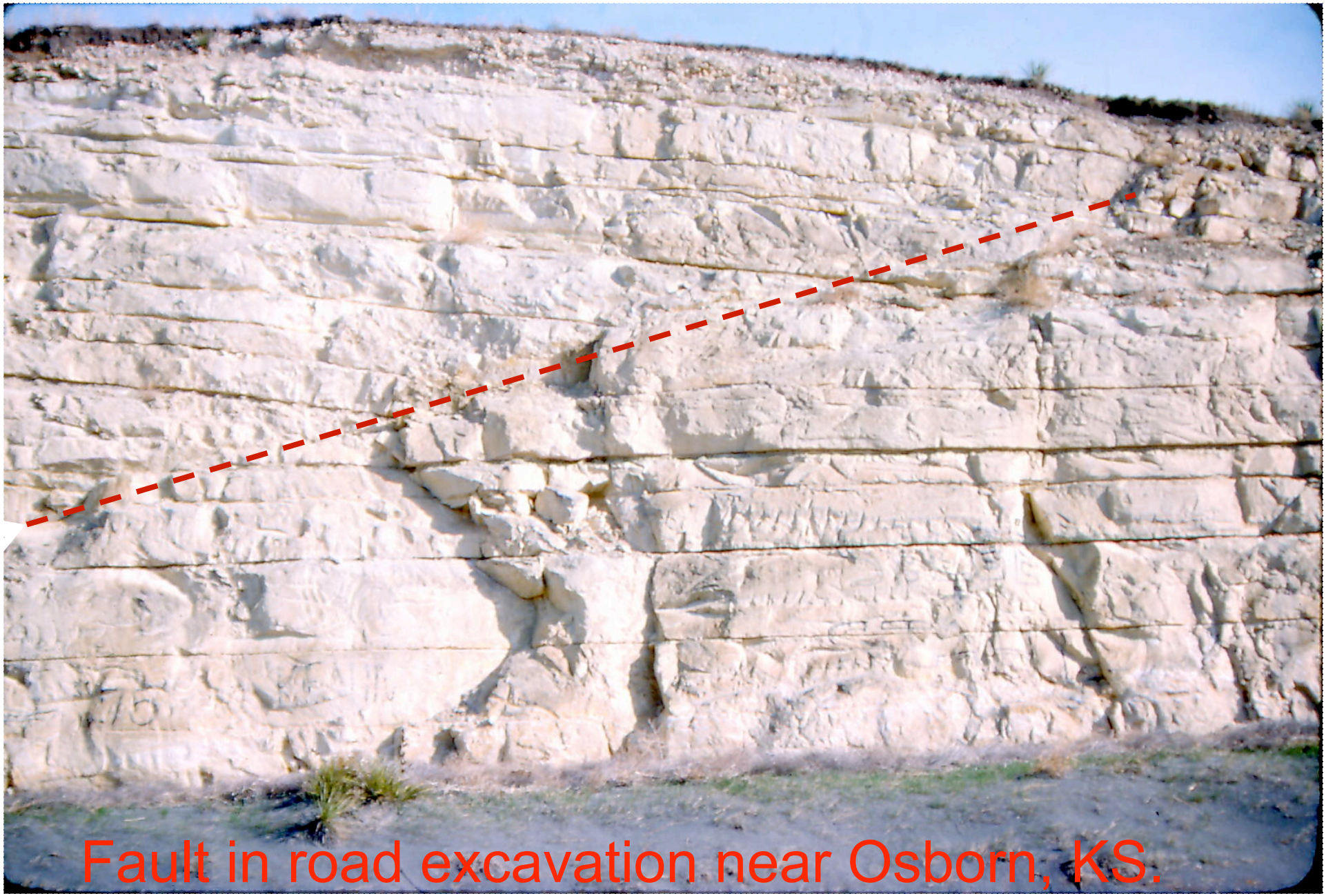


The Earth is layered at all spatial scales. This is the Fencepost limestone layer near Russell, Kansas.



Monument Rocks, south of Oakley, KS.

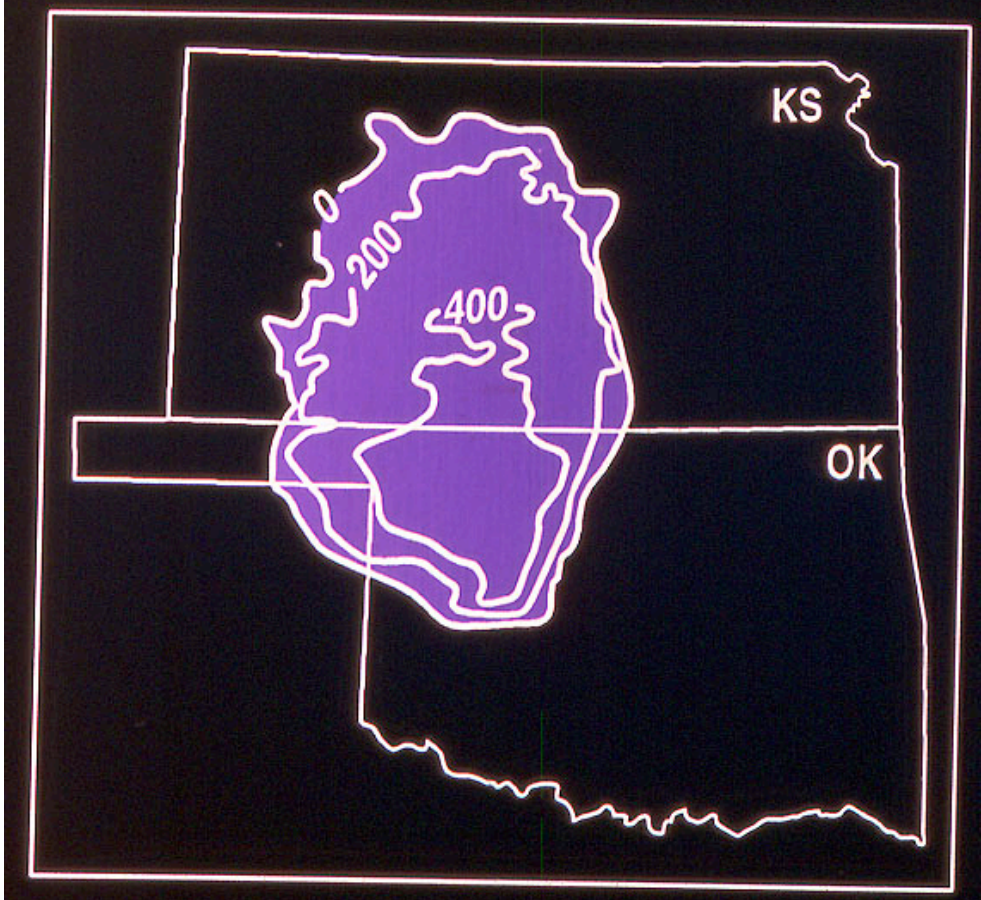
When rock layers erode away, something has to be the last to go.



Fault in road excavation near Osborn, KS.

(Yes we have faults and quakes in Kansas.)

Glacial boulder near Wamego, delivered about 700,000 years ago from Minnesota or the Dakotas



Areal Extent and Thickness of Hutchinson Salt Member

N

150 km

CAUTION
CAUTION
CAUTION

What Does the Future Hold?

- **Sustainability of Resources**
  - Water
  - Soil
  - Wildlife
- **Diversification (Economic Gardening)**
  - Agritourism, ecotourism and heritage tourism
  - Biosciences
  - Alternative Fuels
  - Wind Energy