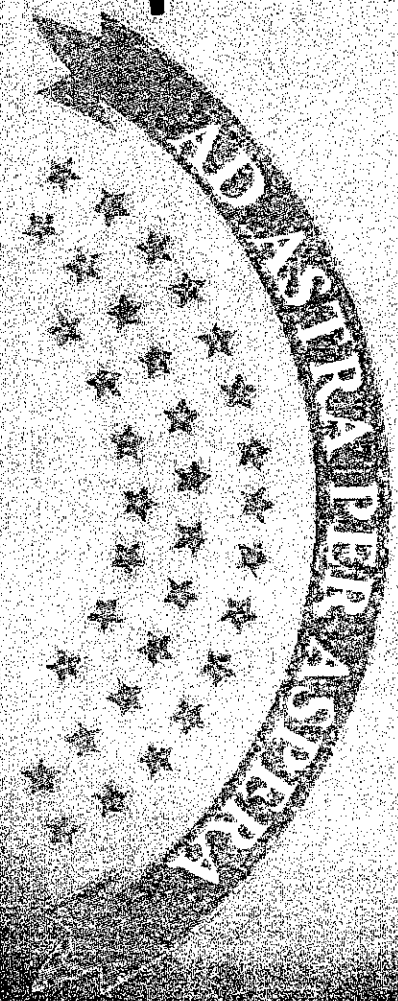




# Kansas

Department of Agriculture

*Division of Water Resources*

**Lane Letourneau, P.G.**

**Water Appropriation Program Manager**

# Historical Perspective

- Kansas Water Appropriation Act – 1945
- Groundwater Management District Act – 1972
- Permit required to use water – 1978 (File No. 31,723)
- Intensive Groundwater Use Control Area - 1978
- Minimum Desirable Streamflow - 1984
- Township Closures – Beginning in 1991
- Most of State Moves to Safe Yield – 1994
- No use it or lose it – 2011
- Multi Year Flex Accounts - 2011
- Local Enhanced Management Area - 2011

# Limited Water in Kansas

- Kansas: variability in hydrologic conditions across the state
  - Average precipitation ranges from 16 inches in western Kansas to 40 inches in eastern Kansas
  - Droughts can be persistent
- Western Kansas
  - Primarily relies on the Ogallala-High Plains aquifer for its water supply
- Eastern Kansas
  - Primarily relies on surface water supplies
- Central Kansas
  - Relies on a mixture of surface and groundwater

# Kansas Water Appropriation Act

1945

- All water is dedicated to the use of the people of Kansas
- Right to use water is based on prior appropriation or “First in time - First in Right”
- Limits rights to reasonable needs
- Allows a limited resource to be allocated for beneficial use and to protect minimum desirable streamflows
- Protects investments, property rights and the resource

# Kansas Water Appropriation Act

- Single priority system for groundwater and surface water
- A water right does not grant ownership of water. It is a real property right to divert and use water for beneficial purposes with reasonable limitations.
- Priority date determines the right to pump not the use.
- Conversions of water rights tend to move toward higher valued uses

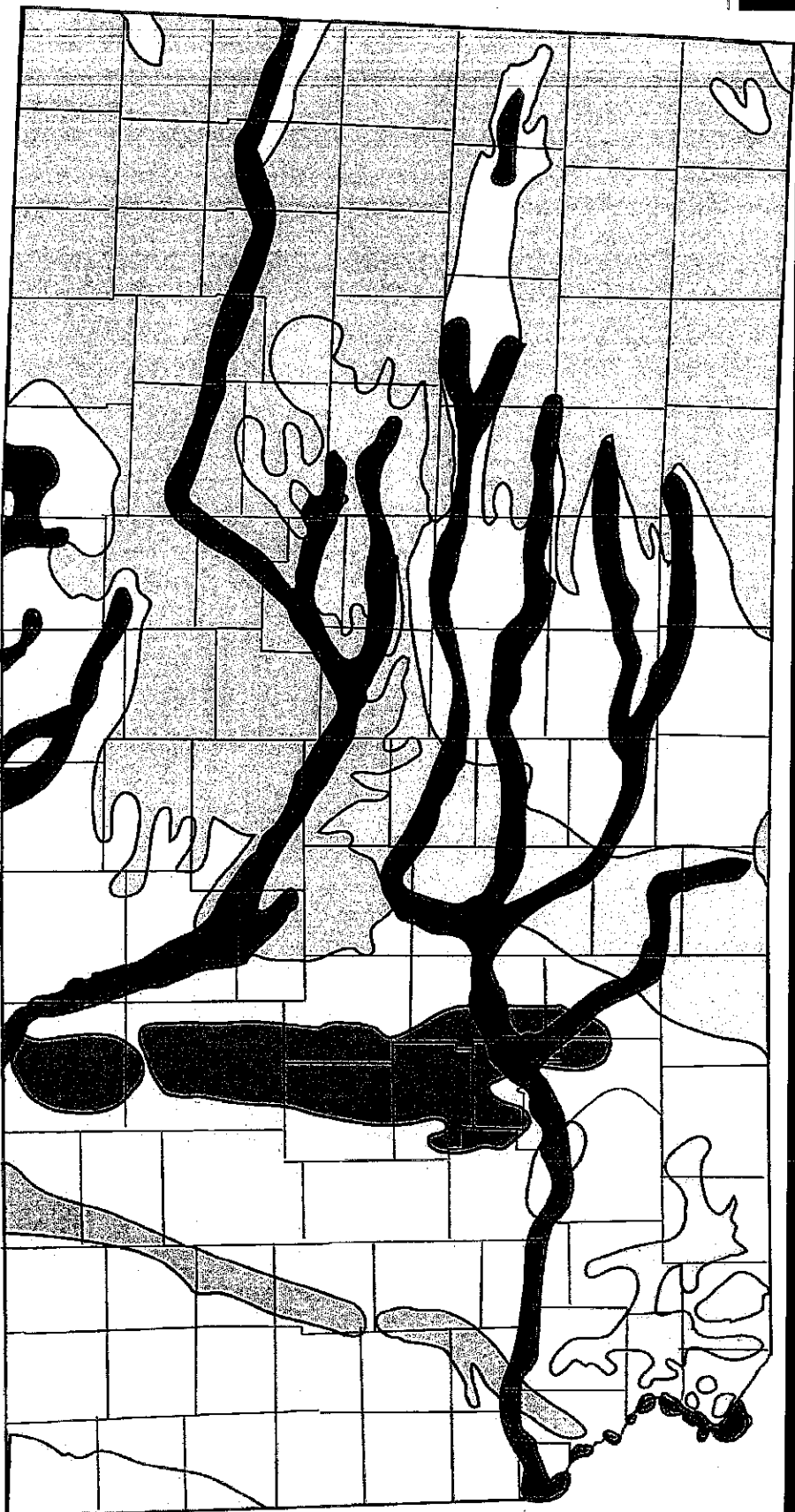
# Protections

- During periods of shortage, junior water rights may be curtailed to satisfy senior water rights and minimum desirable streamflows
- Releases from storage are protected
- Strict first in time, first in right can be harsh
- Statutes provide additional comprehensive tools such as LEMAs and IGUCAs to deal with water problems

# Availability of Water in Fully Appropriated or Closed Areas

- In areas closed to new appropriations of water, additional water use for population growth, new industry, or feedlot can be accommodated through purchase and conversion of existing water rights.
- Changes must pertain the same local source of supply.
- Changes from irrigation to another use such as stock or municipal cannot increase net consumptive use.
- We no longer have to worry about "Use It Or Lose It" in closed areas of Kansas.

# Major groundwater sources in Kansas



Alluvial aquifers



Glacial-drift aquifers



High Plains aquifer



Dakota aquifer



Chase and Council Grove



Douglas aquifer

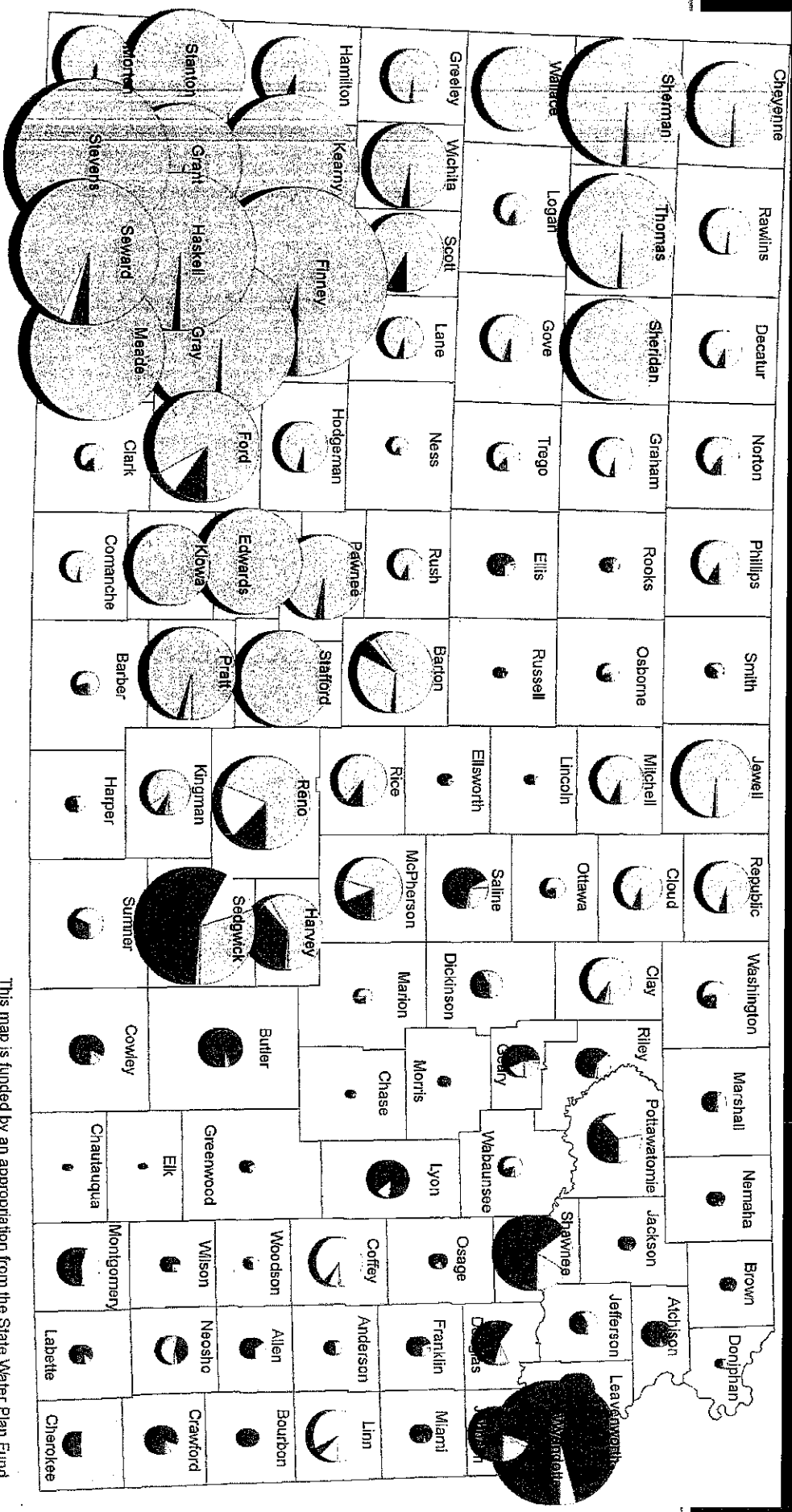


Ozark aquifer



Not a principal aquifer

# Typical Water Use Across Kansas

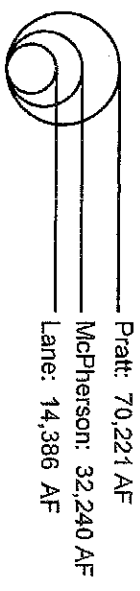


Disclaimer: Features on this map represent conditions as of the date of the map and are subject to change. The user is referred to specific policies, regulations and/or orders of the Chief Engineer.

Percentages of 1.5% or less do not show up in the pie charts.

This map is intended for planning purposes only.

Use Made of Water



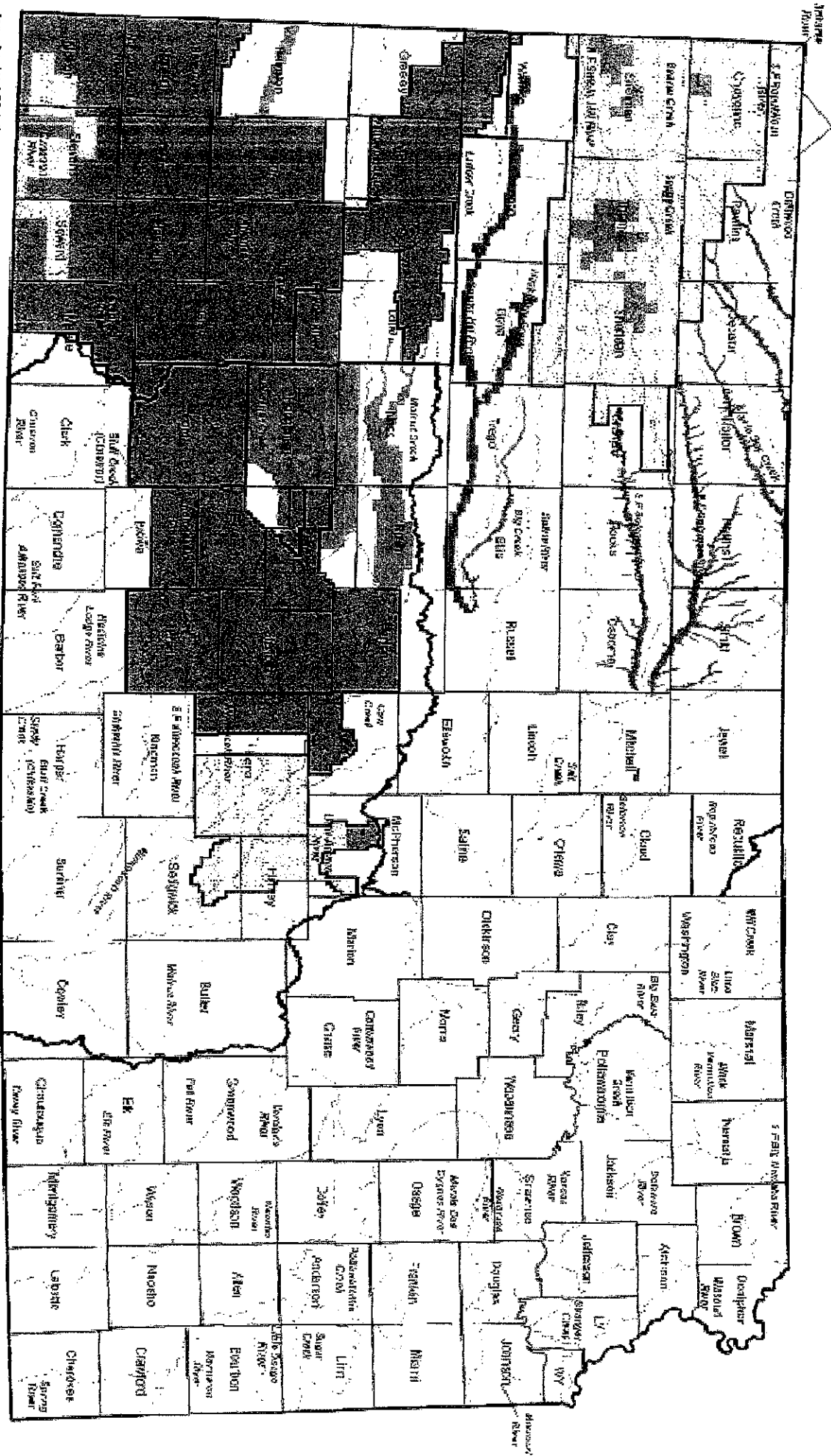
Pratt: 70,221 AF  
McPherson: 32,240 AF  
Lane: 14,386 AF



Kansas Department of Agriculture  
Division of Water Resources  
Water Use Unit  
March 3, 2008

This map is funded by an appropriation from the State Water Plan Fund.

# Groundwater Areas Closed by Rule or Order



## Legend

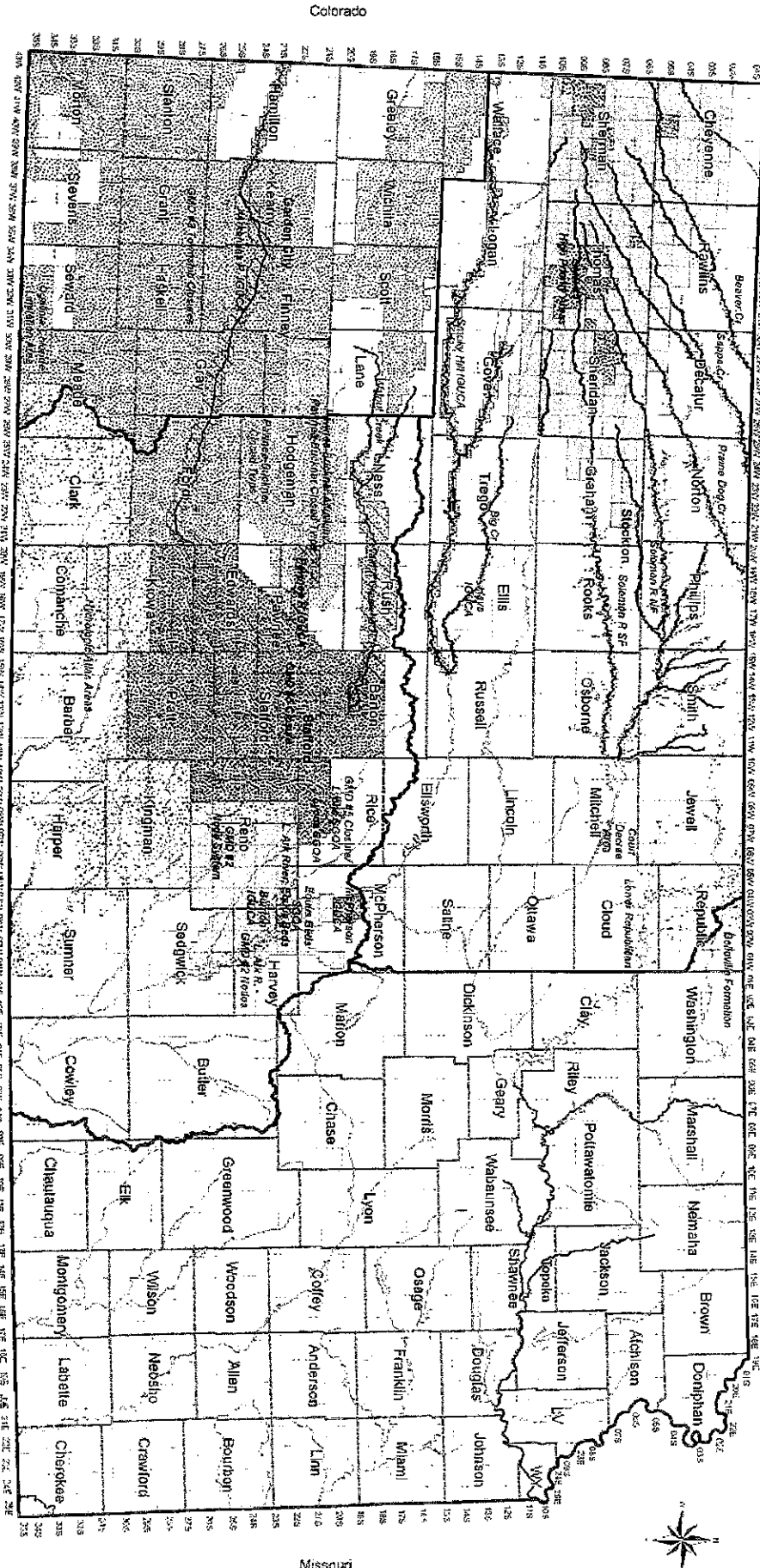
- DWR Field Office Boundaries
- Closed Areas
- GND Boundaries
- County Boundaries
- DWR Basins

Current Department of Agriculture  
as of 1/1/2017  
January 1, 2017

Where boundary lines are shown, they are not intended to show the location of the boundary line. A boundary line is shown with the name and region and is a best practice of being updated.

# Closed and Restricted Areas

Nebraska



Field Office Boundary

Southwest Kansas GMD #3

Western Kansas GMD #1

Northwest Kansas GMD #4

Equus Beds GMD #2

Big Bend GMD #5

IGUCA or SGCA

Closed Area, generally excluding temporary and other small uses in some cases. See regulation for details.

See regulation for details.

Area subject to Special Restrictions. See regulation for requirements.

Closed Streams, generally excluding temporary and other small uses in some cases. See regulation for details.

Streams, surface water generally available. Includes Missouri River.

Restricted Streams, specific restrictions for streams and alluvium given in regulation.

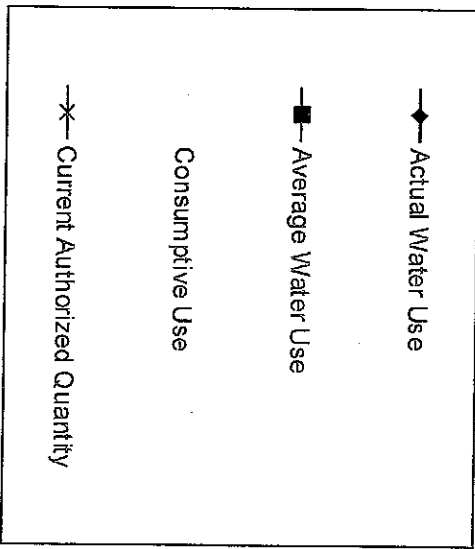
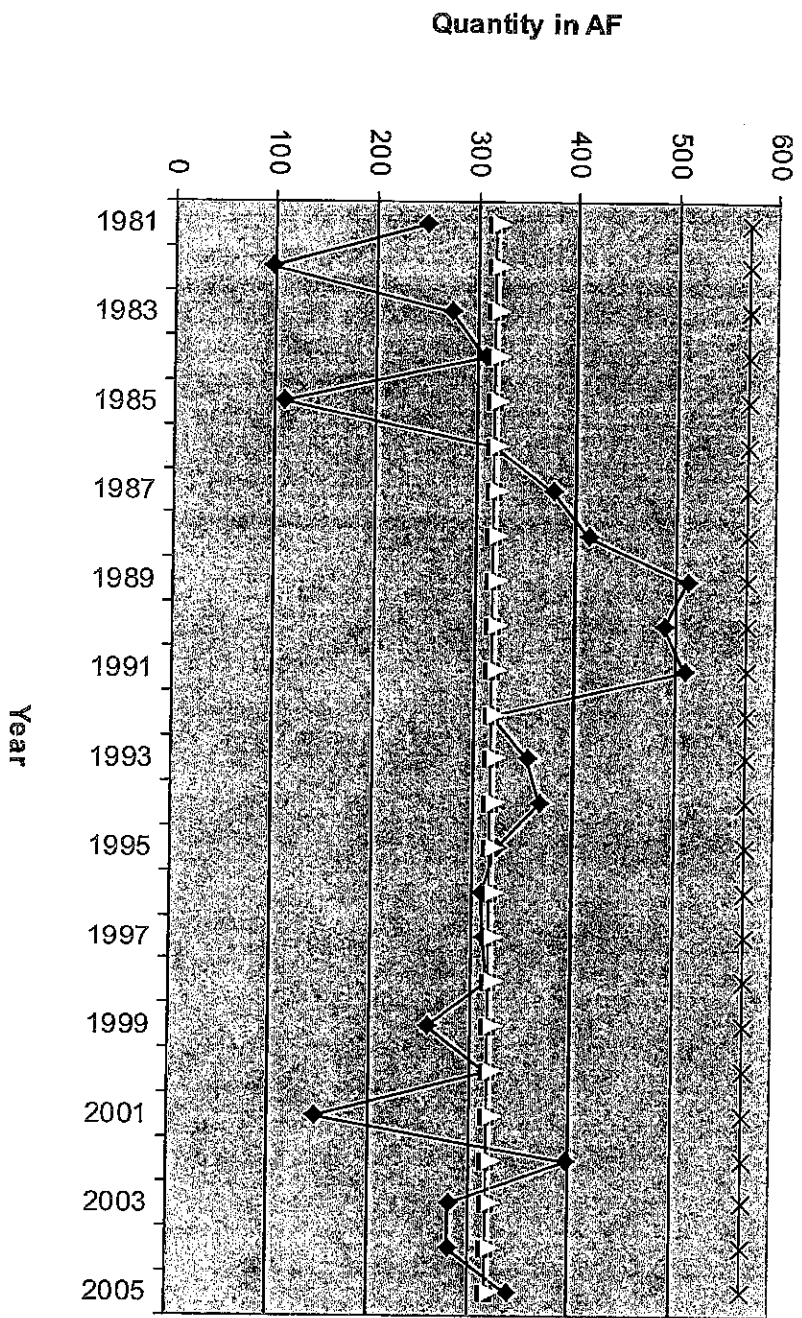
Disclaimer - Features on this map represent conditions as of the date of the map and are subject to change. The user is referred to specific policies, regulations, and/or orders of the Chief Engineer.

August 22, 2011

Missouri

# Why DWR Considers Consumptive Use

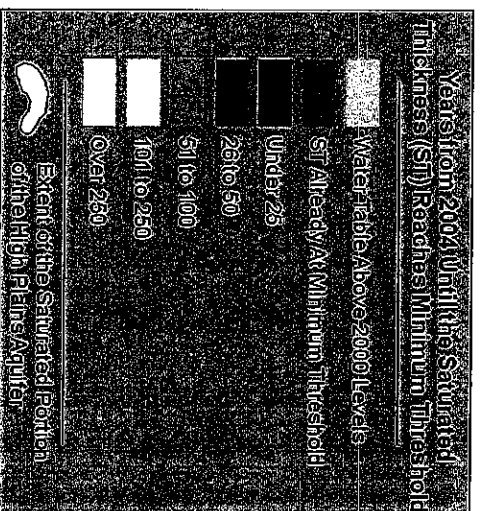
Example Water Use and Consumptive Use  
Thomas County - Random Selection



# 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  
1880 Connel Avenue  
Lawrence, Kansas 66047-3726  
(785) 843-3505 <http://www.kgs.ku.edu>

KGS Open-File Report 2005-8.

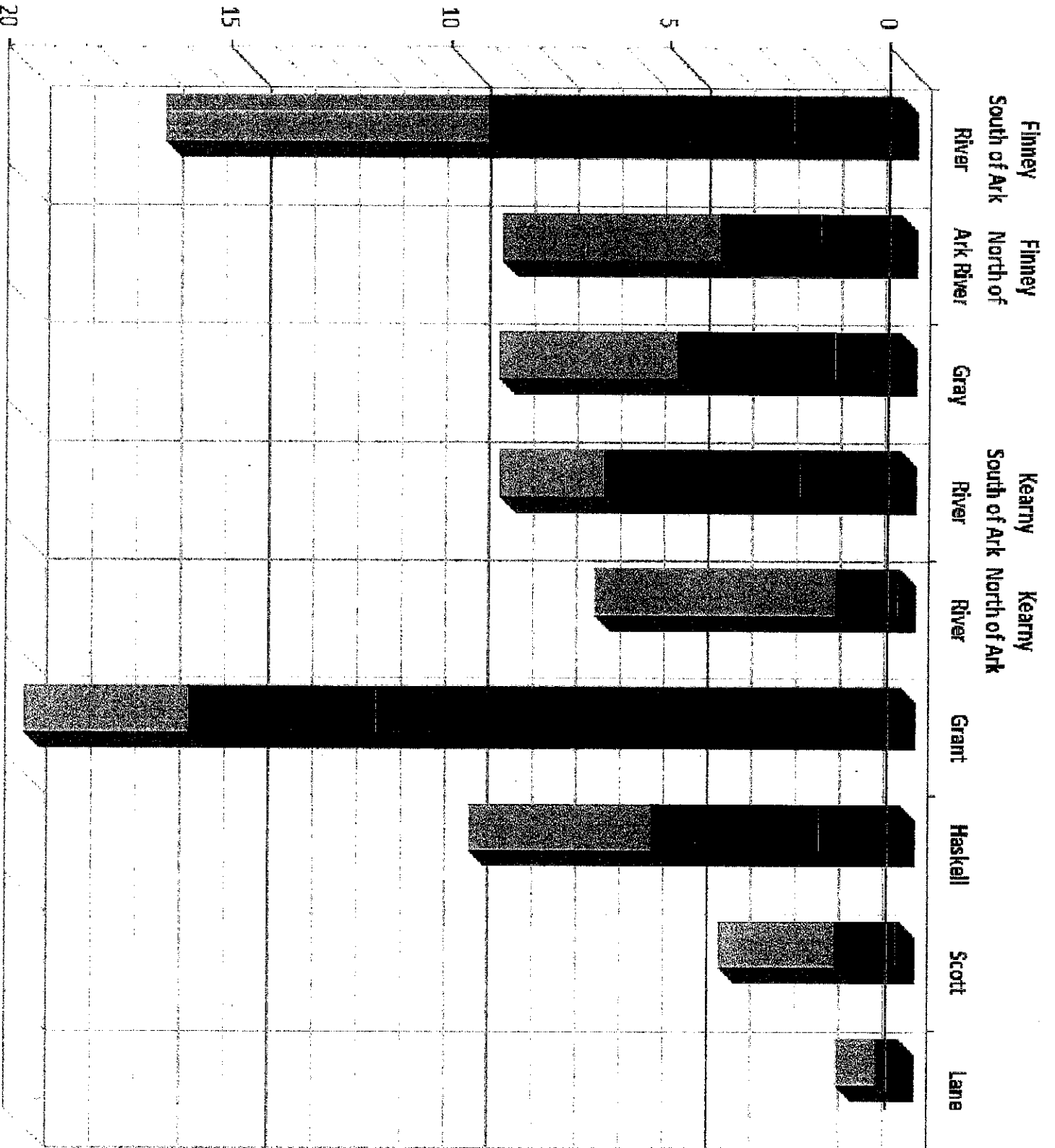
The Kansas Geological Survey made a considerable effort to ensure the accuracy of this report. However, the Kansas Geological Survey does not guarantee this document to be completely free from errors or inaccuracies and disclaims any responsibility or liability for interpretations based on data used 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.

Groundwater data obtained from the Water Information Database (WIDB) at <http://www.kgs.ku.edu/Water/WaterIndex.html>. Minimum ST threshold estimates based on results in KGS OFR 2002-25C which can be obtained at [http://www.kgs.ku.edu/HighPlainsCH-IP2002\\_25C.pdf](http://www.kgs.ku.edu/HighPlainsCH-IP2002_25C.pdf).

Projection:  
Standard Parallel  
33 and 45 degrees North  
Longitude  
98.25 degrees West  
Latitude of Origin  
36 degrees North

April 22, 2005

**Average Groundwater Level Decline in Feet Since 2010**

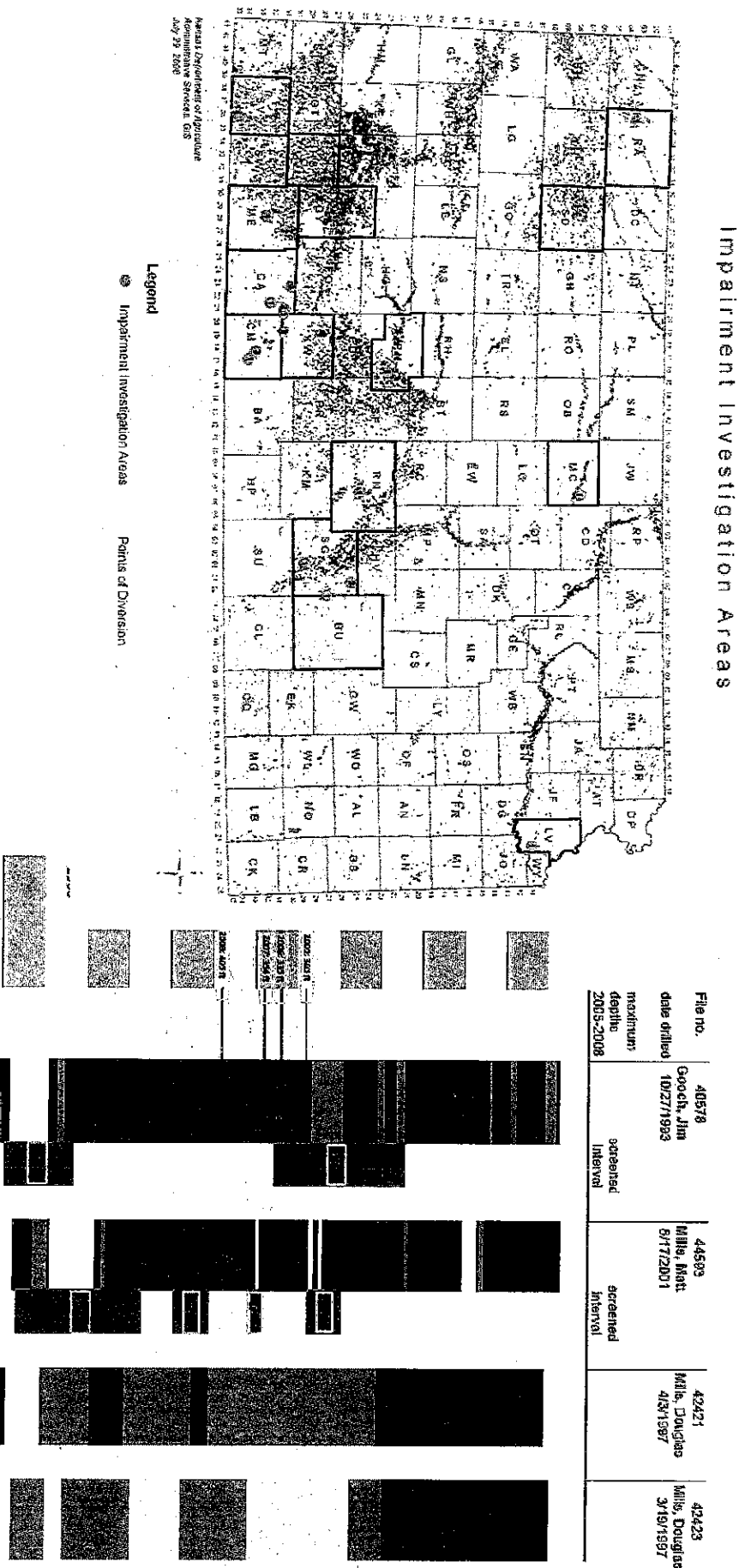


■ 2012 average decline  
 ■ 2011 average decline  
 ■ 2010 average decline  
 KDA-DWR water level measurements

# Groundwater impairment investigations

- We are starting to see a few impairment complaints in areas that used to have a robust water supply
- Investigations can be complex
- Administration has curtailed pumping on junior rights
- USFWS Quivera has an active investigation
- Litigation has happened. Junior rights are shut off and DWR has been ordered by the court to craft a remedy
- Strict water rights administration is not the preferred method if we can create a softer landing with LEMAs and IGUCAs

# Groundwater impairment investigations



Arizona Department of Agriculture  
Administrative Services, GIS  
July 29, 2006

# Intensive Groundwater Use Control Areas (IGUCA)

- Created in 1978 when permits were required
- Water management tool that works in conjunction with the Kansas Water Appropriation Act
- Allows for more-flexible solutions taking in to account the area and aquifer
- Provides alternatives to strict administration of water rights by priority
- Formal public hearings are held
- Decision by chief engineer based on hearing record

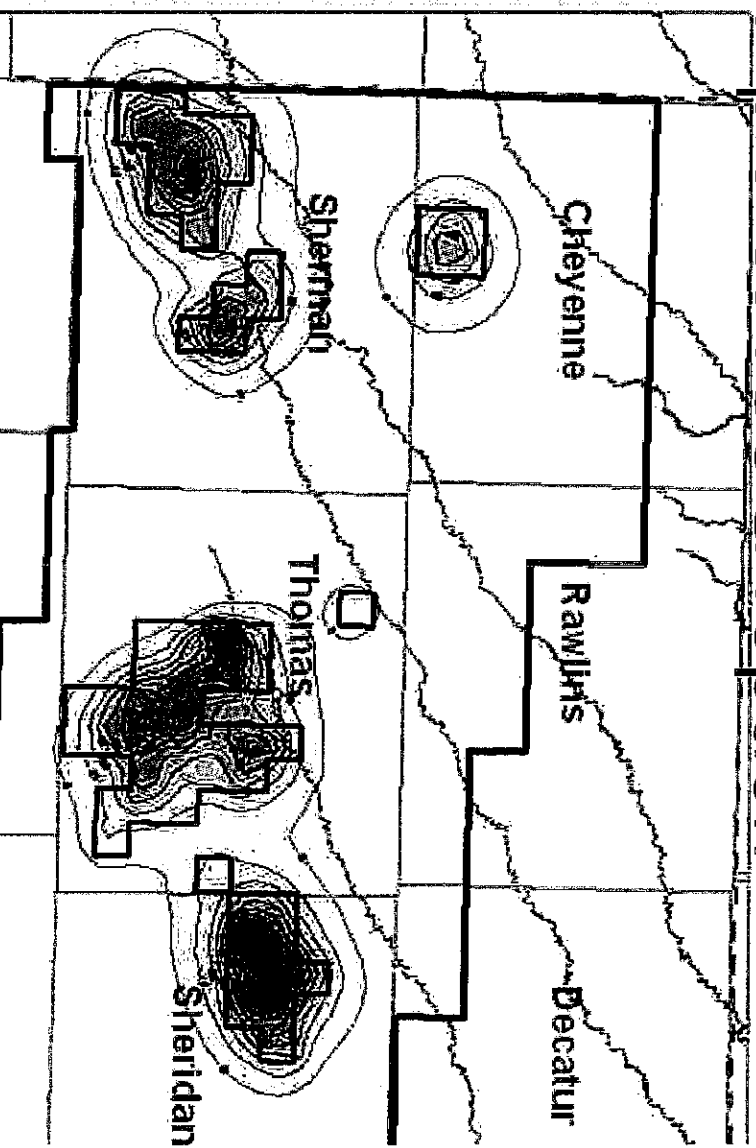
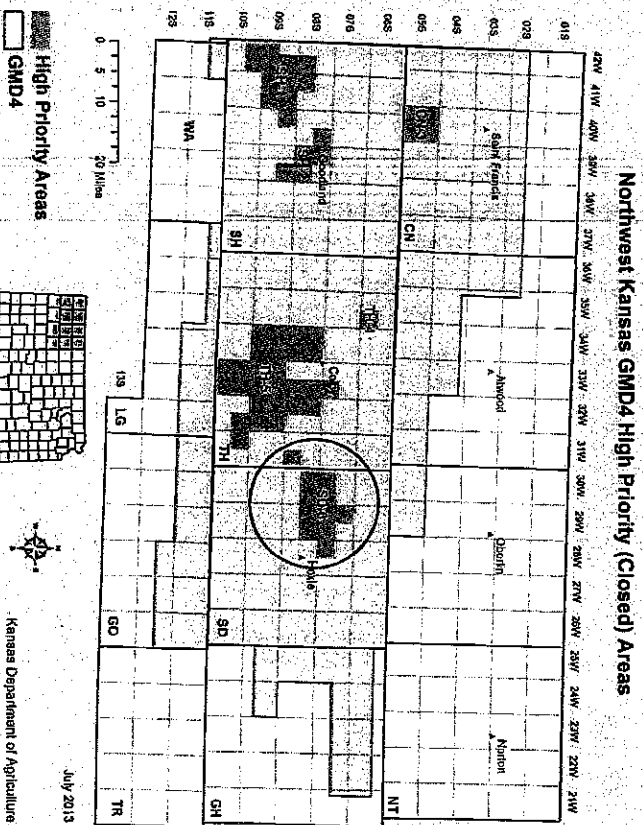
A detailed map of Iowa, showing its 99 counties. The map is oriented with North at the top. Major cities are marked with black dots and labeled: Des Moines (central), Iowa City (southeast), Cedar Rapids (northwest), Davenport (west), and Dubuque (far west). The map is divided into counties, each labeled with its name. The map is a black and white line drawing.



# Local Enhanced Management Areas (LEMAs)

- Proactive plans developed by locals and GMDs
- Include conservation measures to address specific water resource problems
- Hearings before the Chief Engineer to adopt, reject or return plan to the GMD
- Shared solution respecting priority

- GMD 4 identified high priority areas (HPA)
- Model demonstrated benefits of cuts stay put
- "Sheridan 6" HPA wanted to cut use 20%
- Tried regulations; explored IGUCA option



# LEMA Status

- GMD 4 initiated Sheridan 6 proceedings
  - Two hearings: September and November 2012
  - Orders of decision and designation
  - In our first season of actual use
- Governor actively encouraging more
- Looking at more areas in GMD 4
- GMD 1 LEMA vote failed but 52% voted yes

# Multi-Year Flex Account

Tool providing multi-year flexibility without increasing long-term water use

- A 5 year Term permit using a base water right to establish a 5 year quantity of water
- The quantity can be used in a flexible way over the term period
- Can divert in excess of the base right's annual quantity if under the total quantity
- This is a planning and flexibility tool not a conservation tool

# 2015 proposed legislation

- Augmentation
  - HB 2059 and SB 52
  - Allow augmentation to satisfy a senior water right
- Water Conservation Areas
  - HB 2227 and SB 227
  - Allow 100% consent for conservation
- Provide Flexibility
- Multi Year Flex Account
  - HB 2069 and SB 36
  - Carry forward unused quantity

# Water Management Trends

- Areas increasingly becoming fully appropriated and/or closed to new appropriations
- Increased use of metering
- Increased need for water conservation
- Increased flexibility
- Stricter penalties for non-compliance
- We will see more LEMAs and WCAs when passed