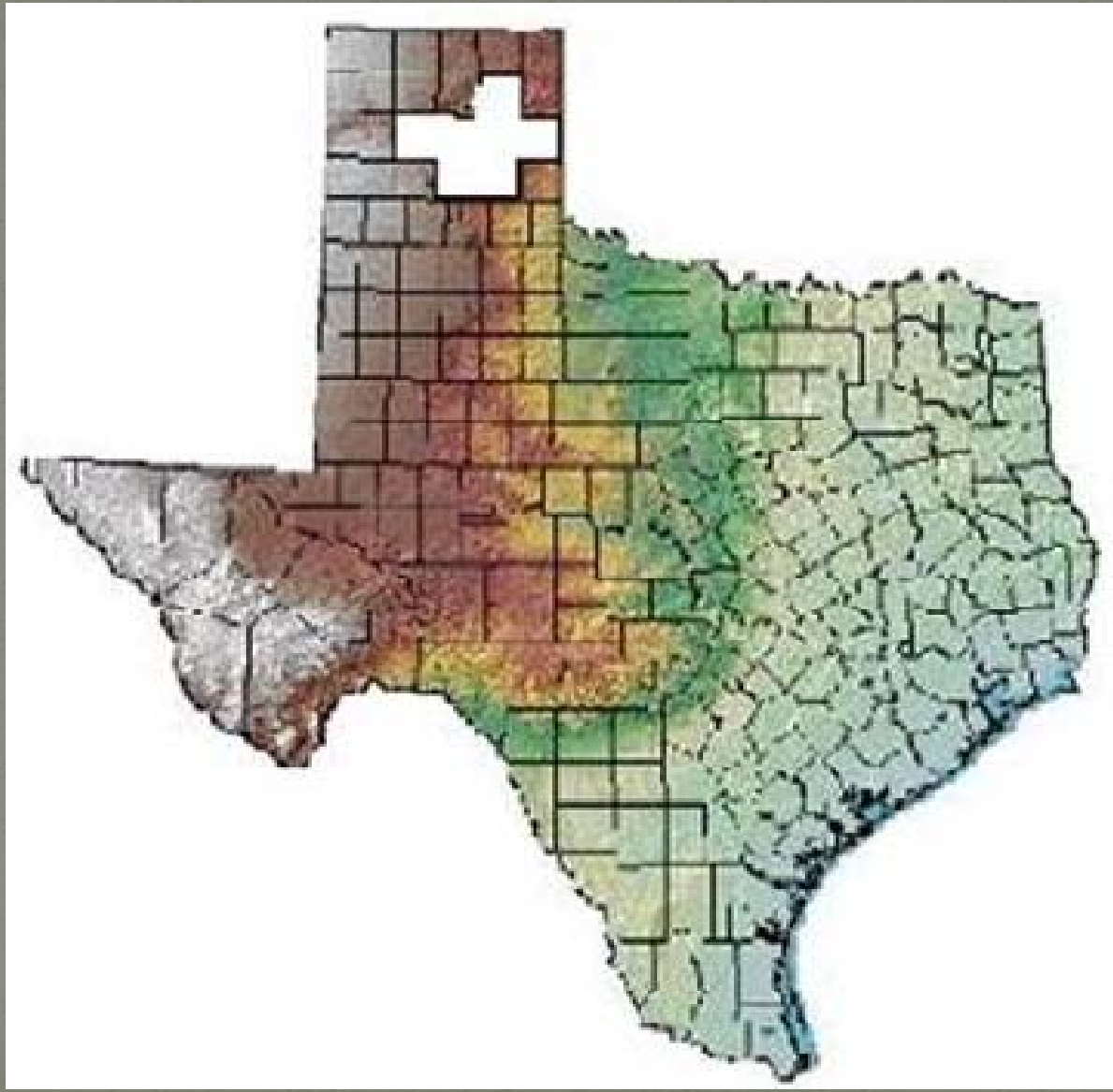
The State of Groundwater in the Panhandle

Amy Crowell
Panhandle Groundwater Conservation District

Red River Authority
Canadian and Red River Basins
Advisory Committee Meeting
March 22, 2011

Panhandle Groundwater Conservation District

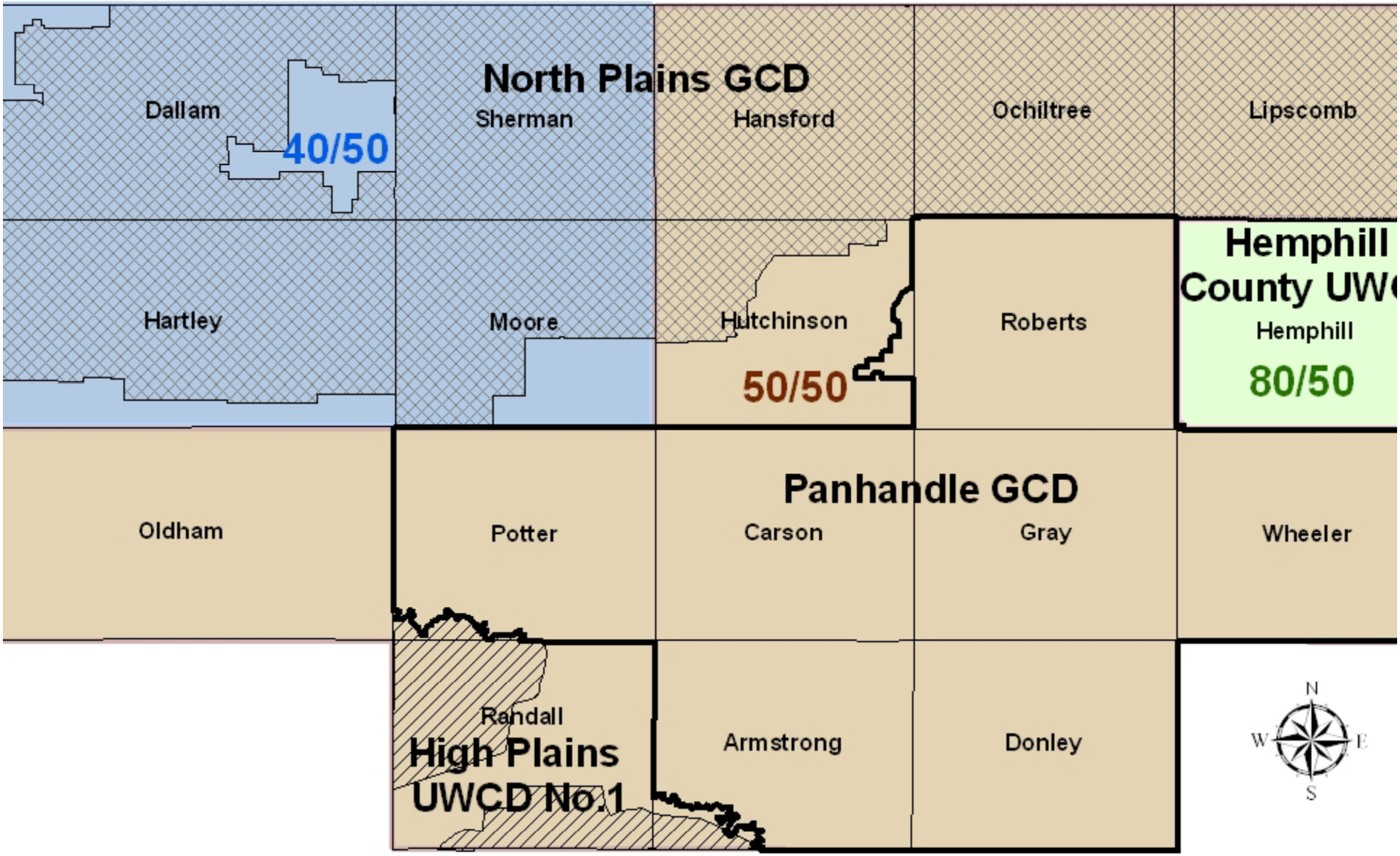


Discussing Water in Texas

Groundwater Districts

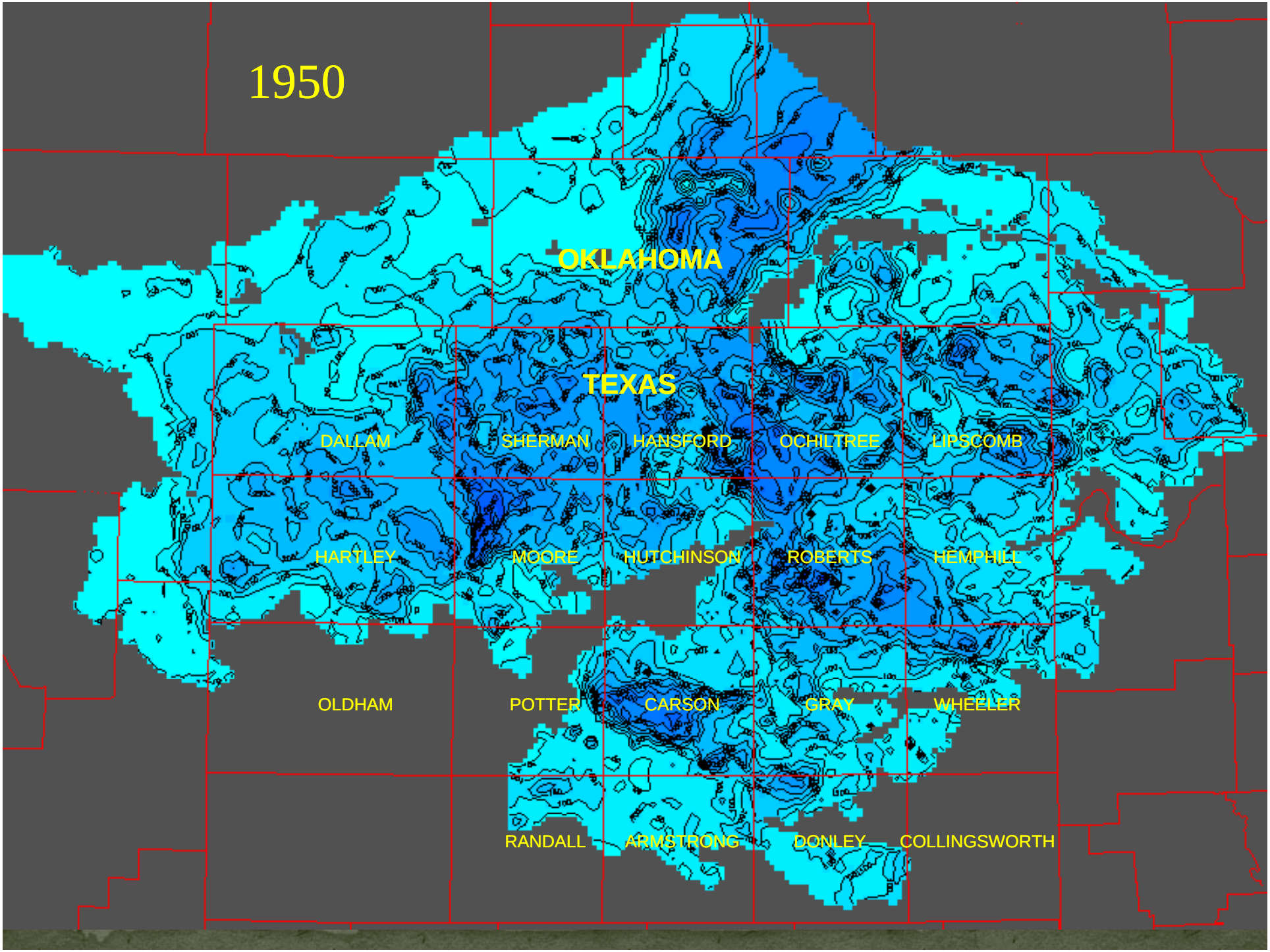
- Are the State's preferred method of managing groundwater.
- Have locally elected Boards.
- Are tasked with making rules to modify the rule of capture, including regulating:
  - Spacing between wells
  - Production limitations
- Are tasked with making rules to meet the Desired Future Conditions set by the Groundwater Management Area.

GMA 1 DFC's


North Plains GCD
Dallam
40/50
Sherman
Hansford
Ochiltree
Lipscomb
Hartley
Moore
Hutchinson
50/50
Roberts
Hemphill
County UW
Hemphill
80/50
Oldham
Potter
Panhandle GCD
Carson
Gray
Wheeler
Randall
High Plains
UWCD No.1
Armstrong
Donley
N
W
E
S

The Current Model

- Shows a study done for Regional Planning efforts that predicted parts of the Panhandle running out of water.
- Begins in 1950 and uses actual data until 2003.
- After 2003, data is projected using 2003 pumping figures.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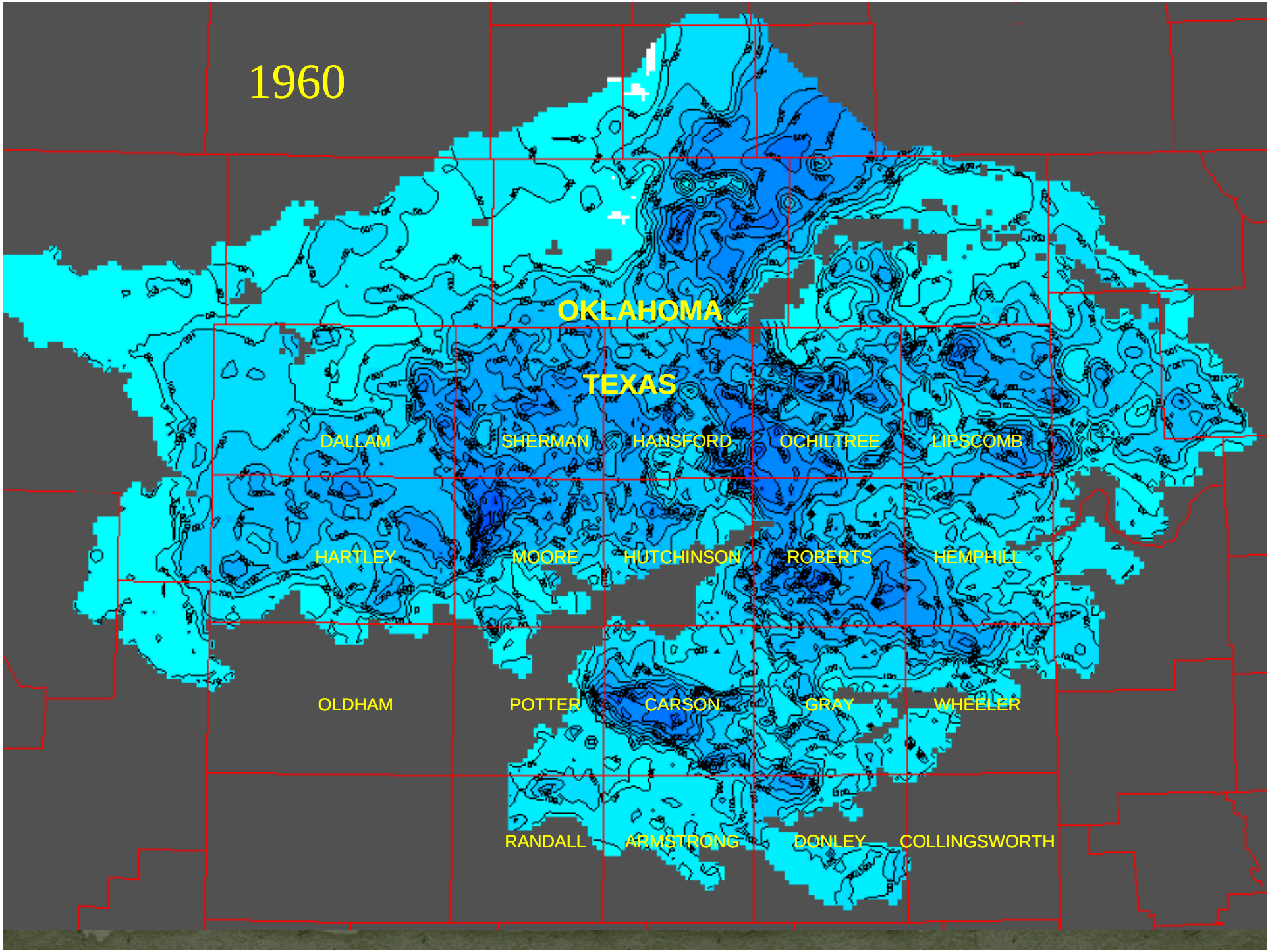
DONLEY
COLLINGSWORTH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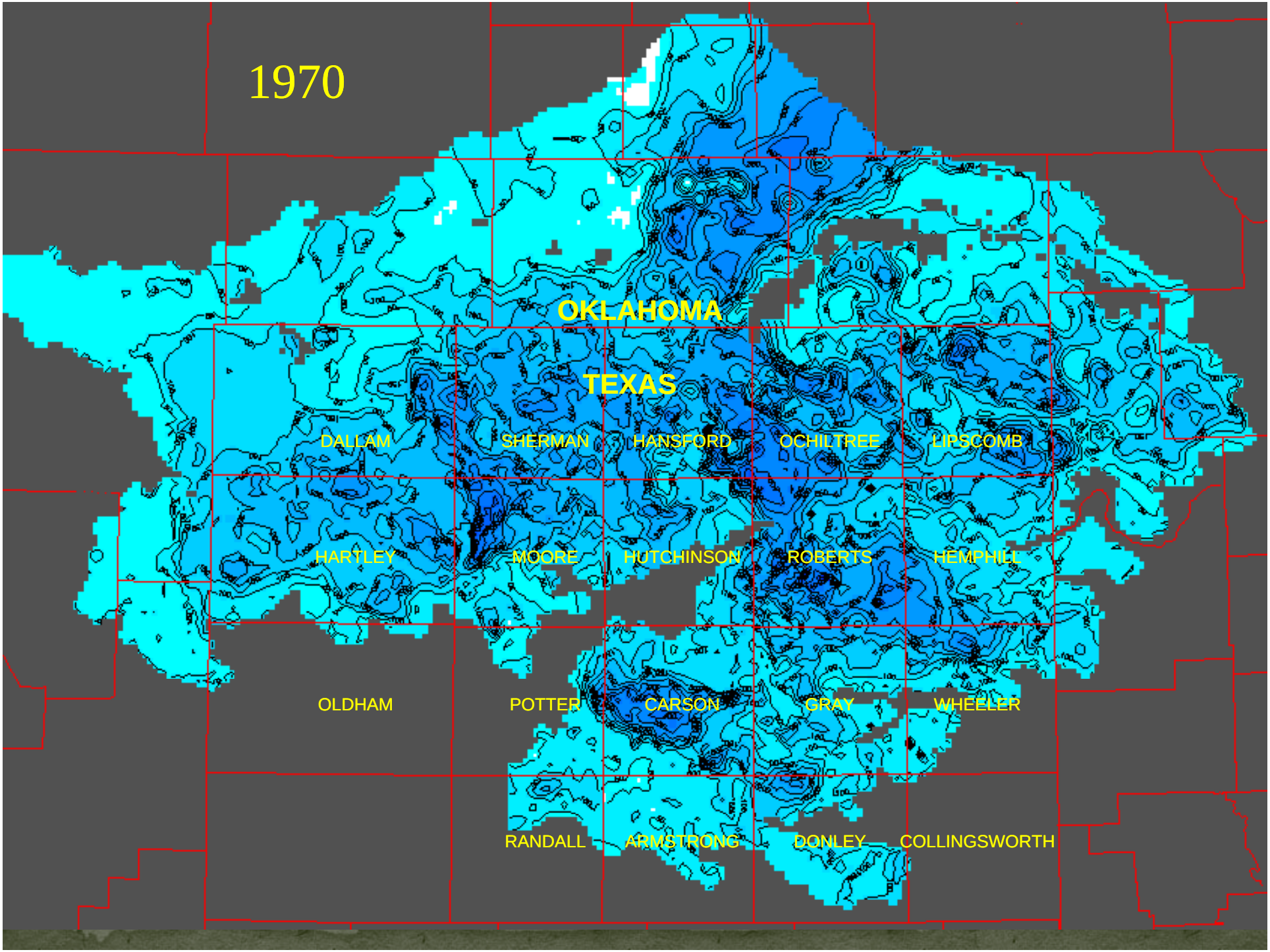
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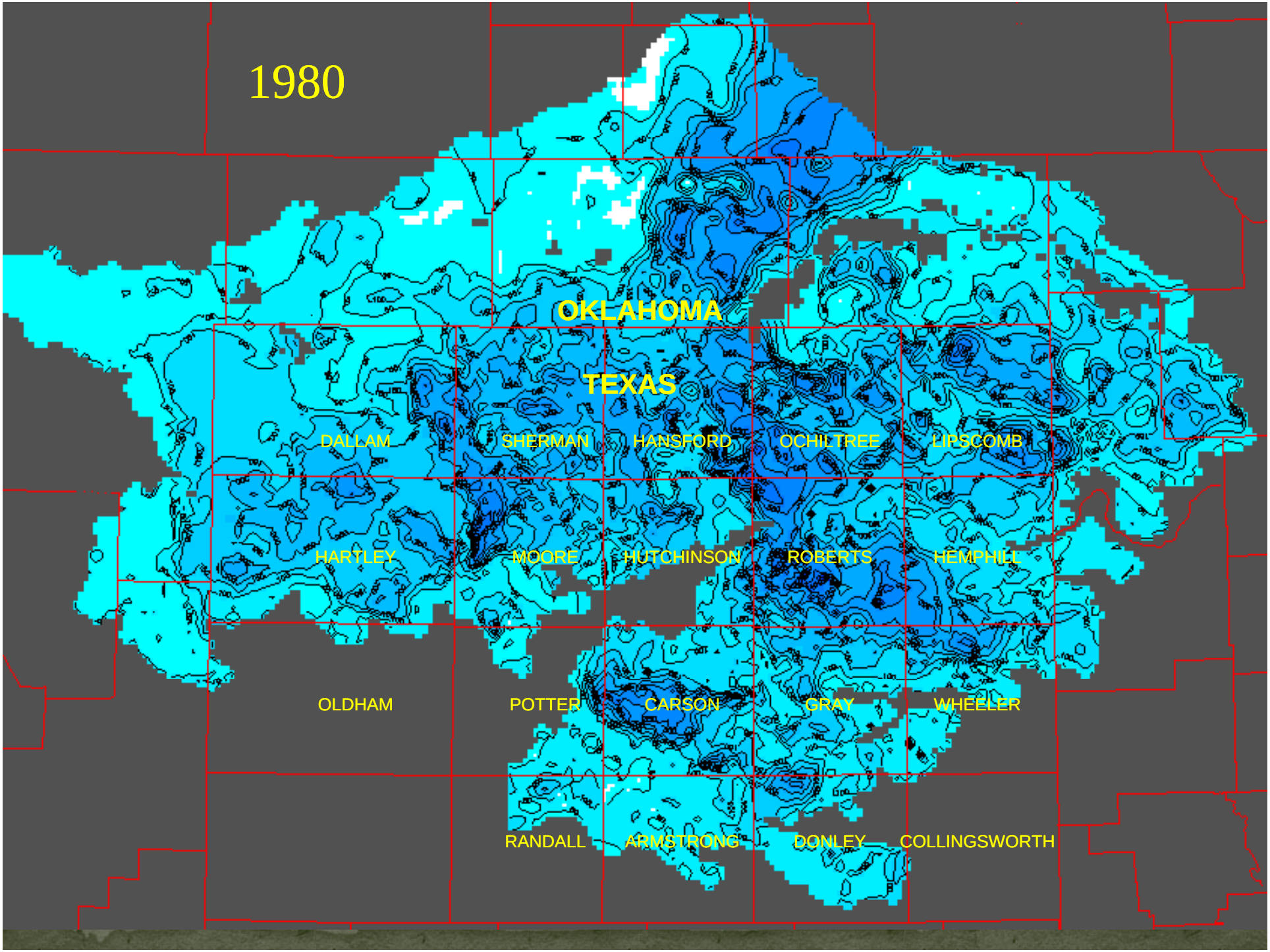
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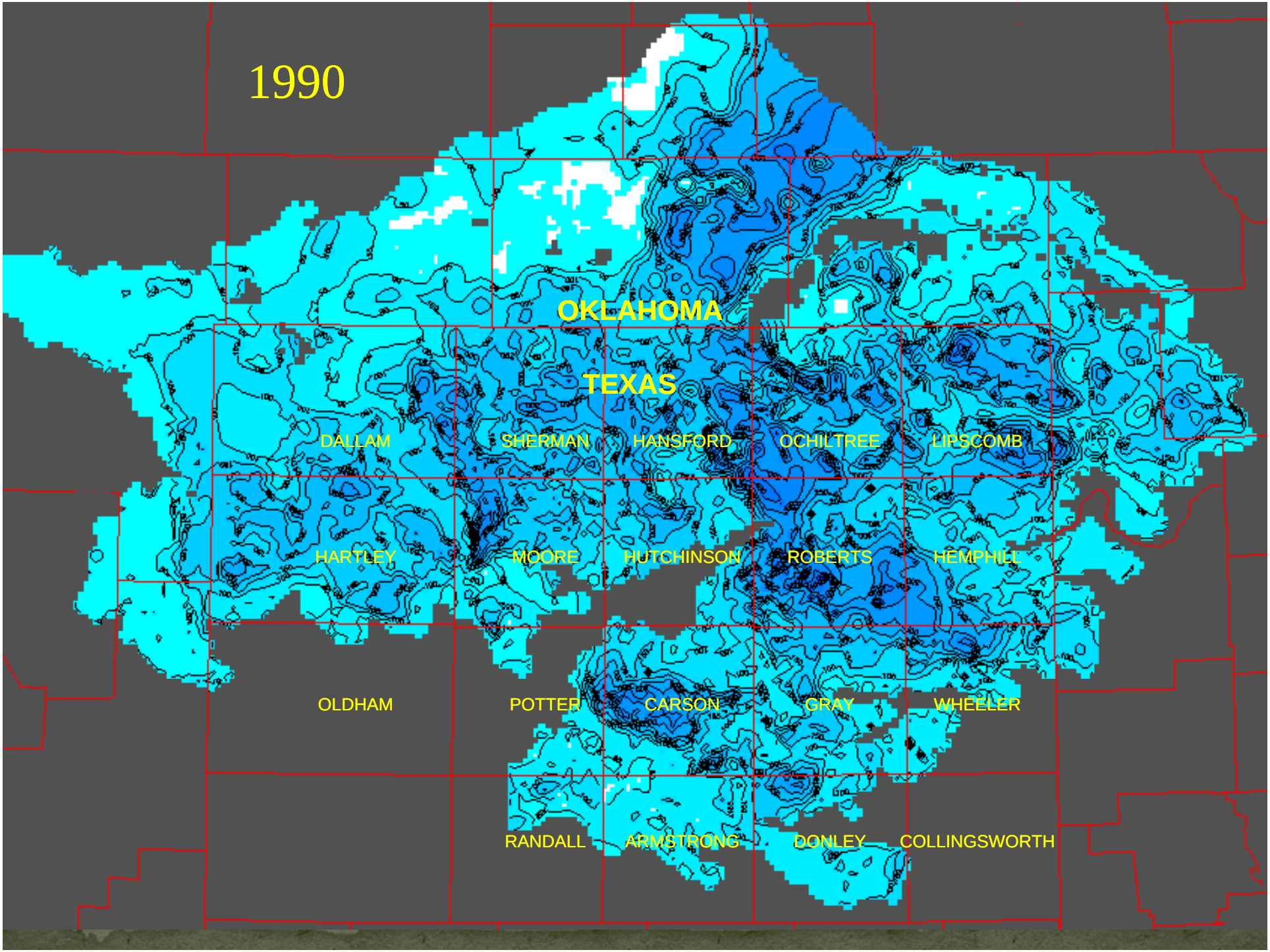
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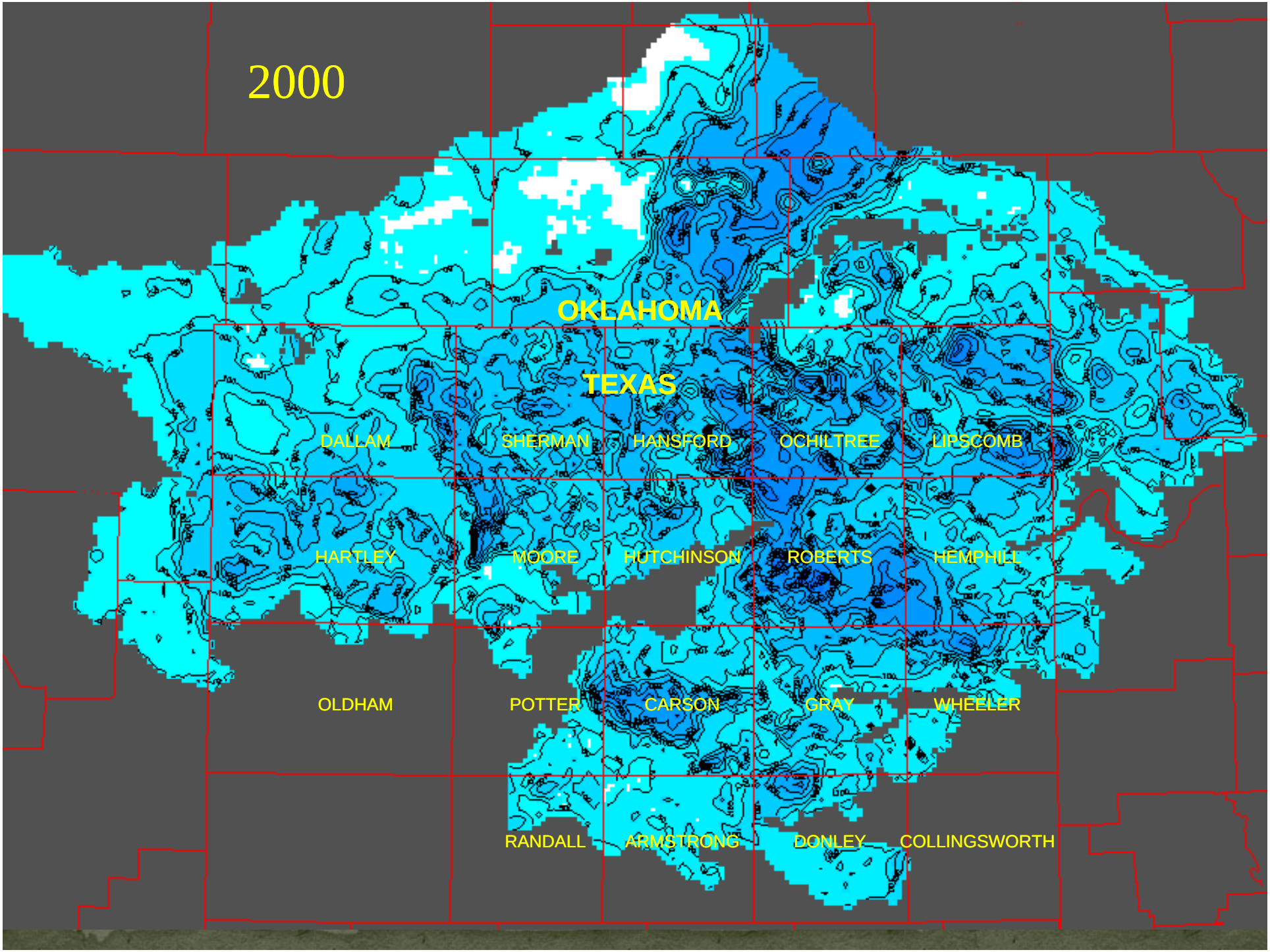
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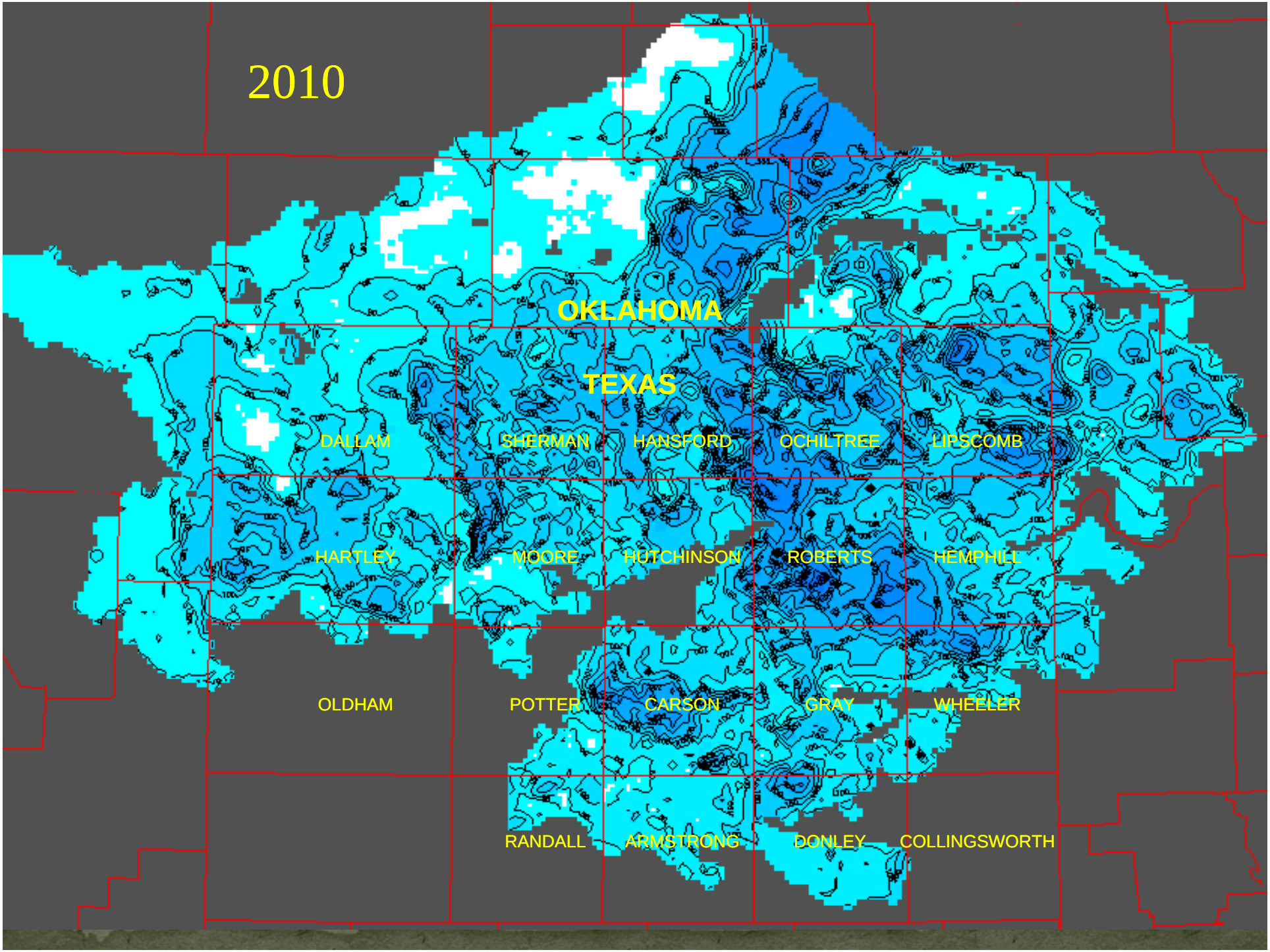
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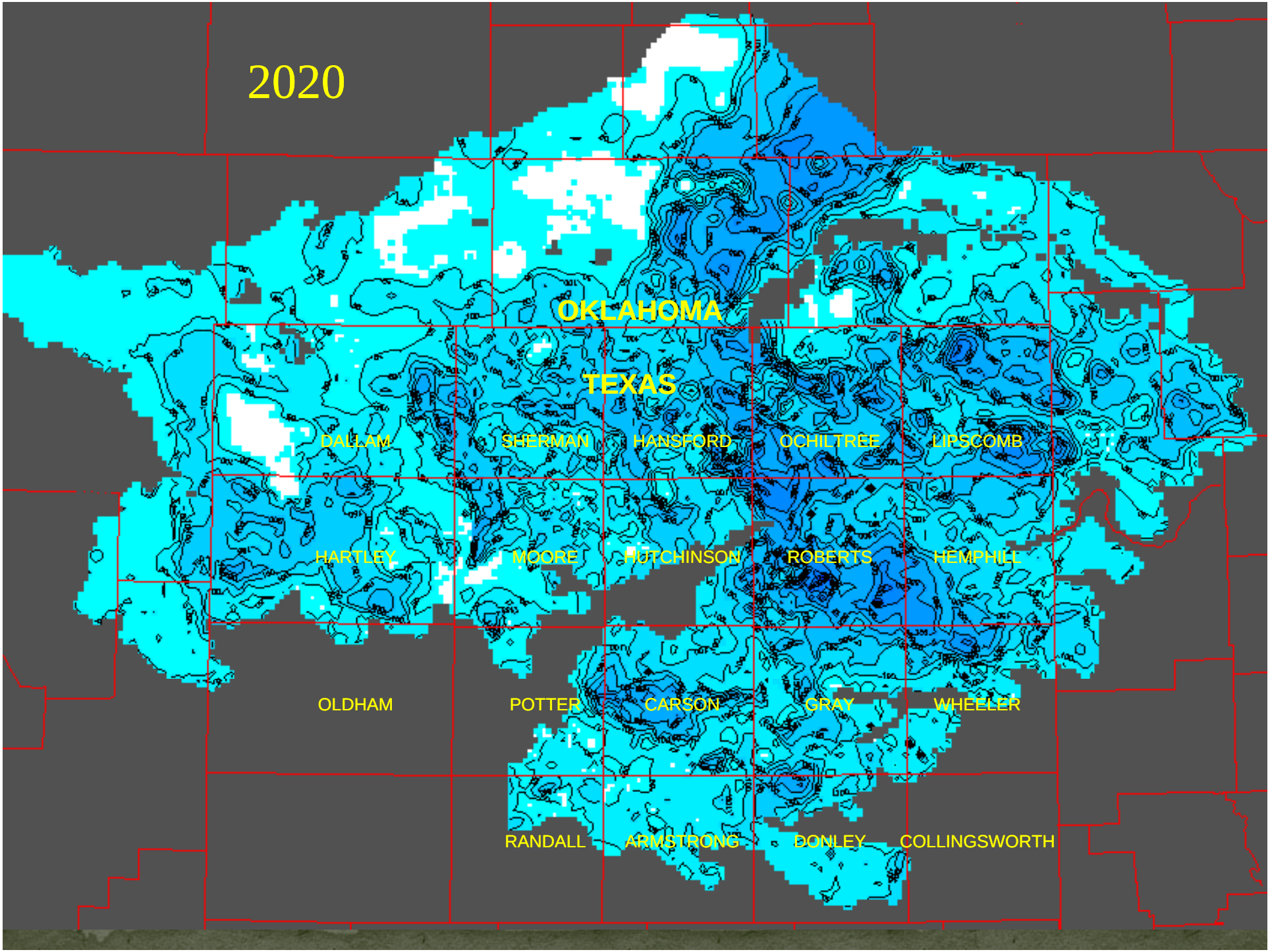
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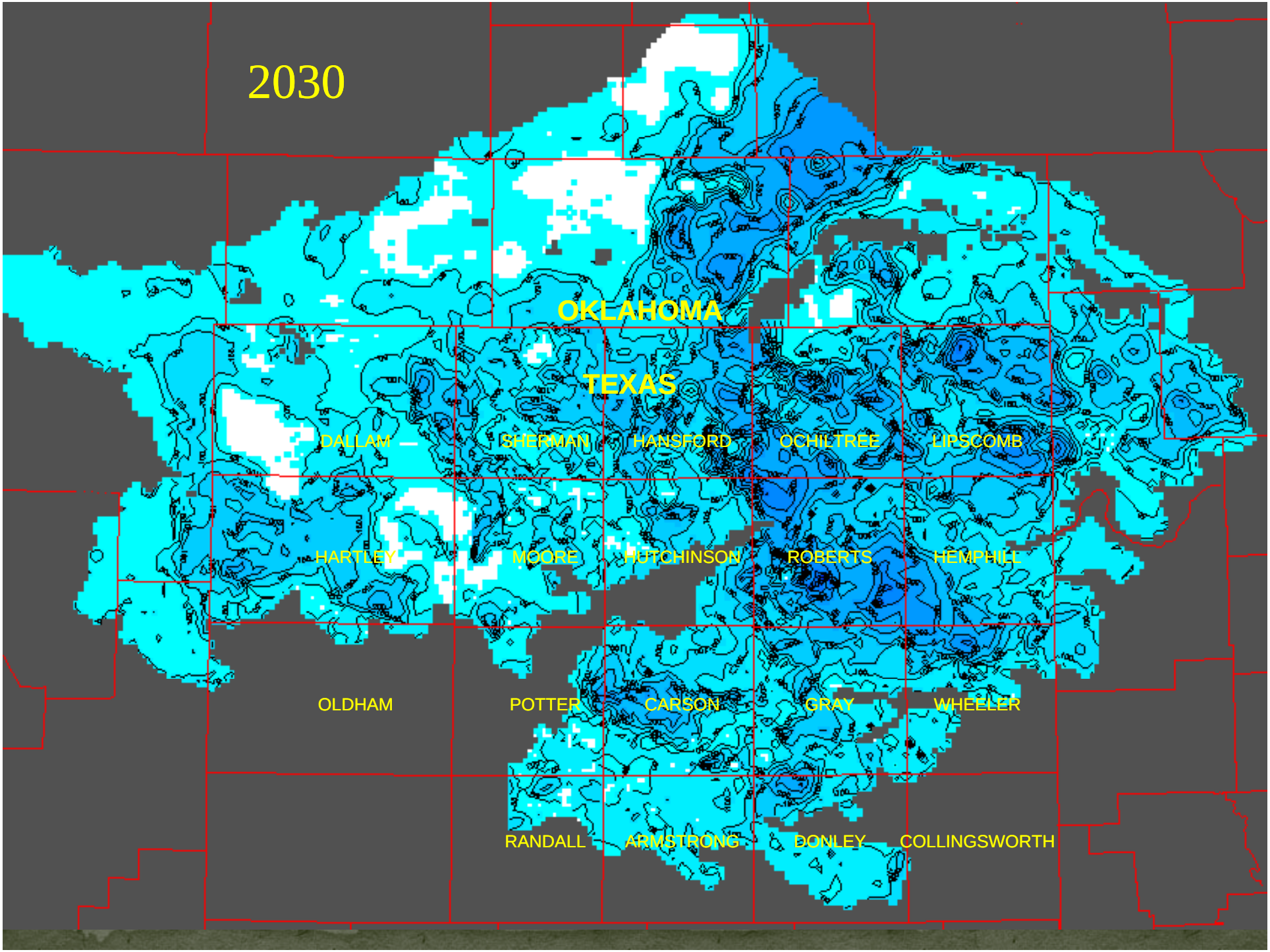
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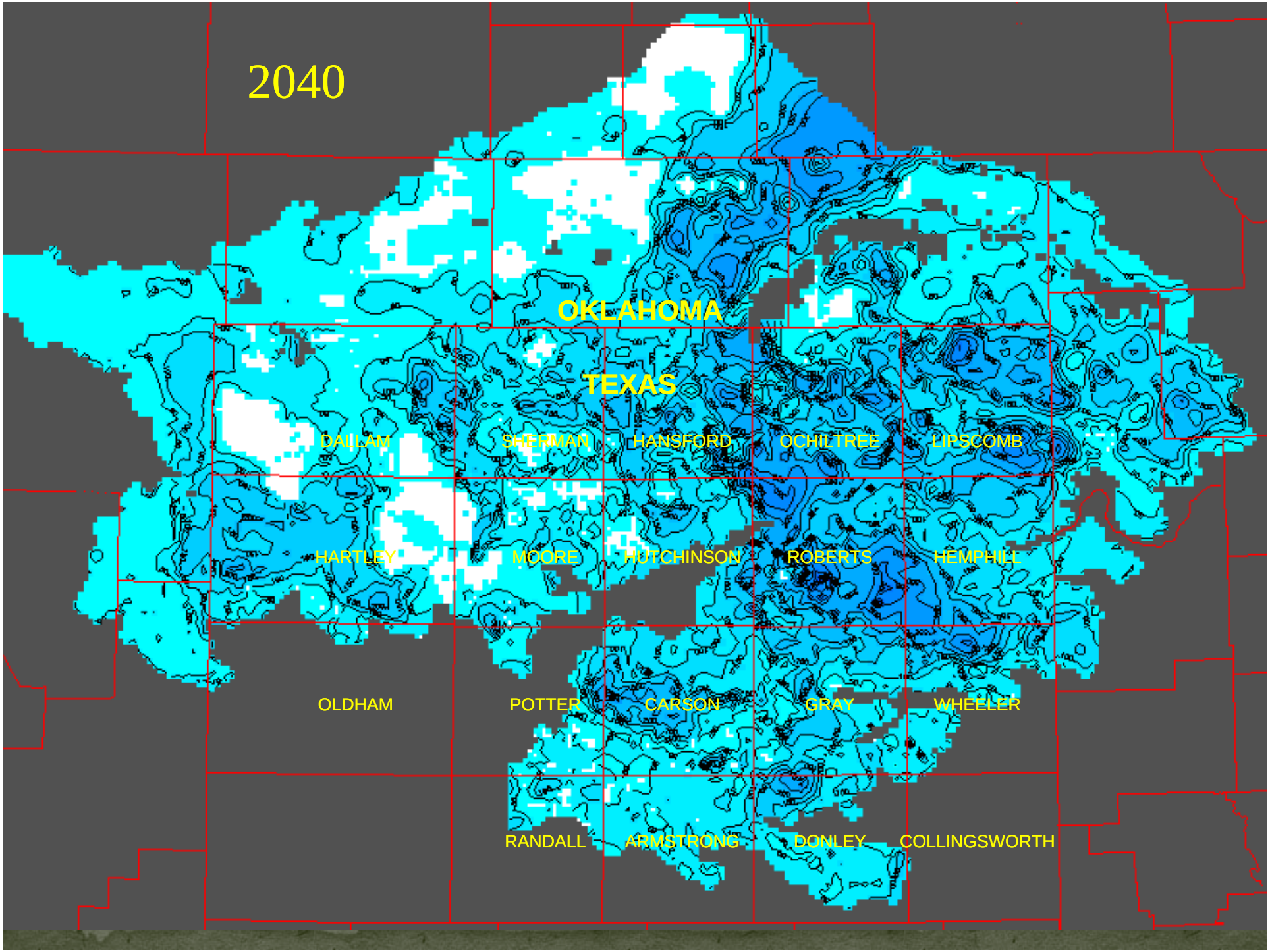
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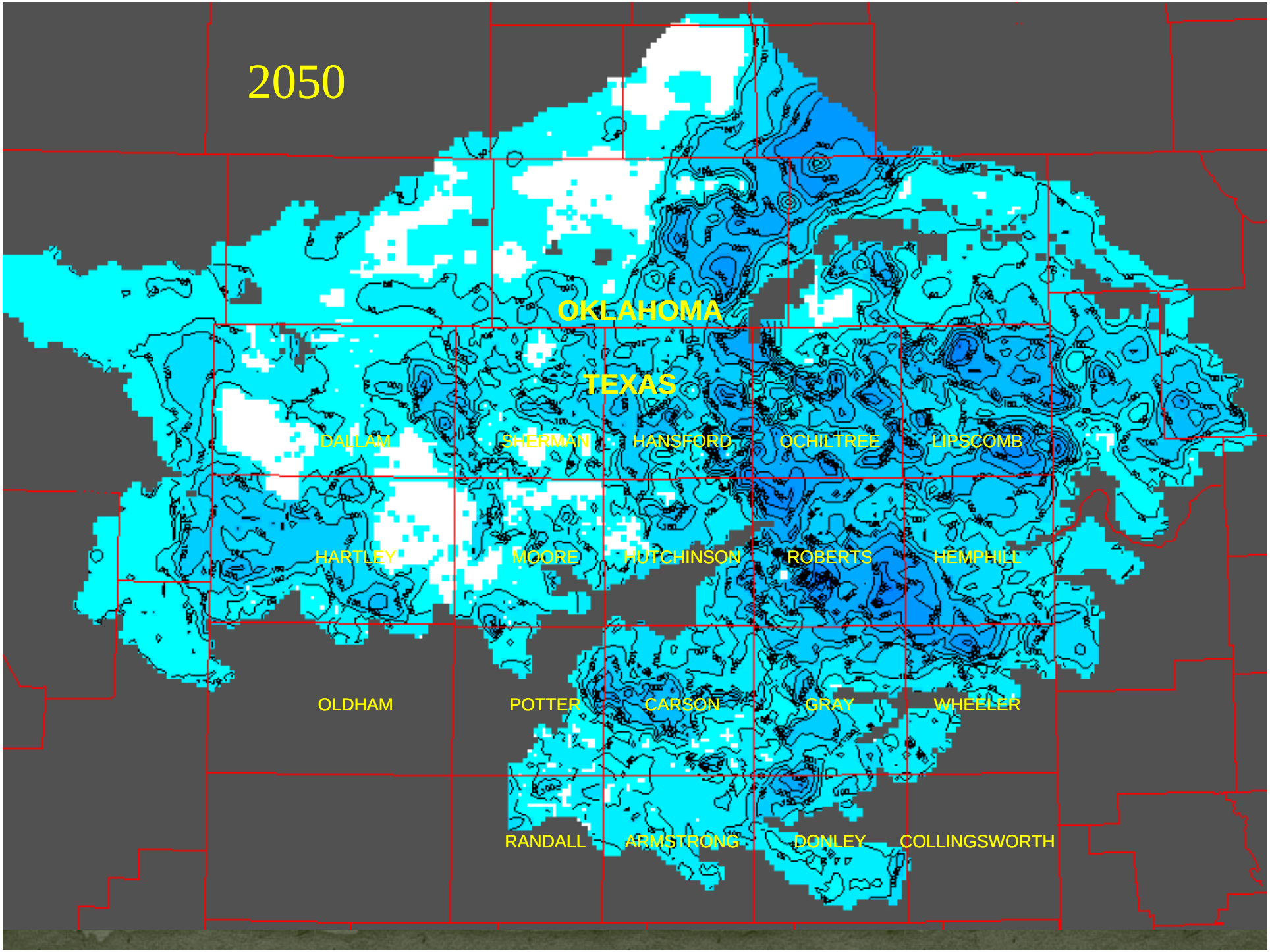
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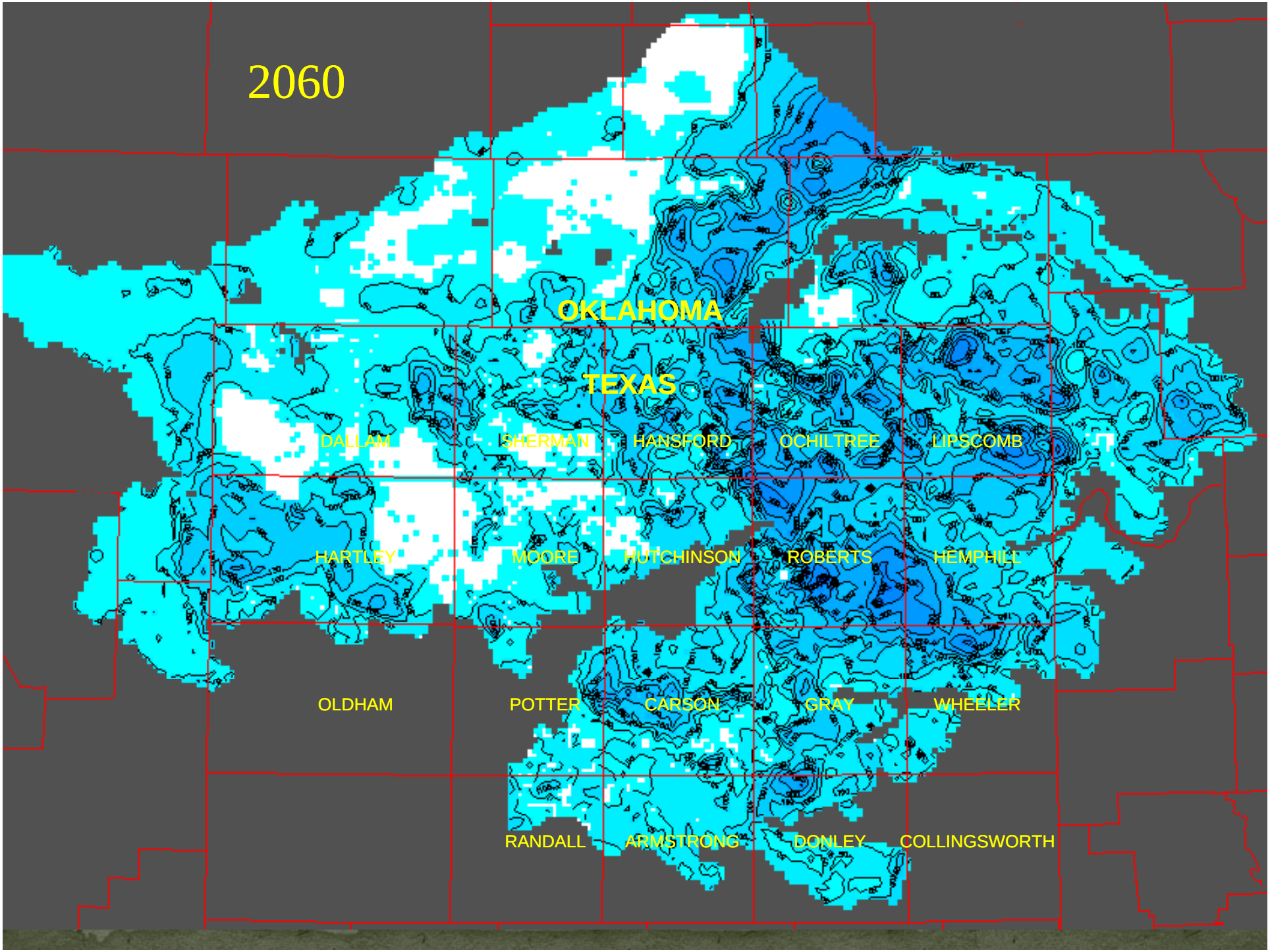
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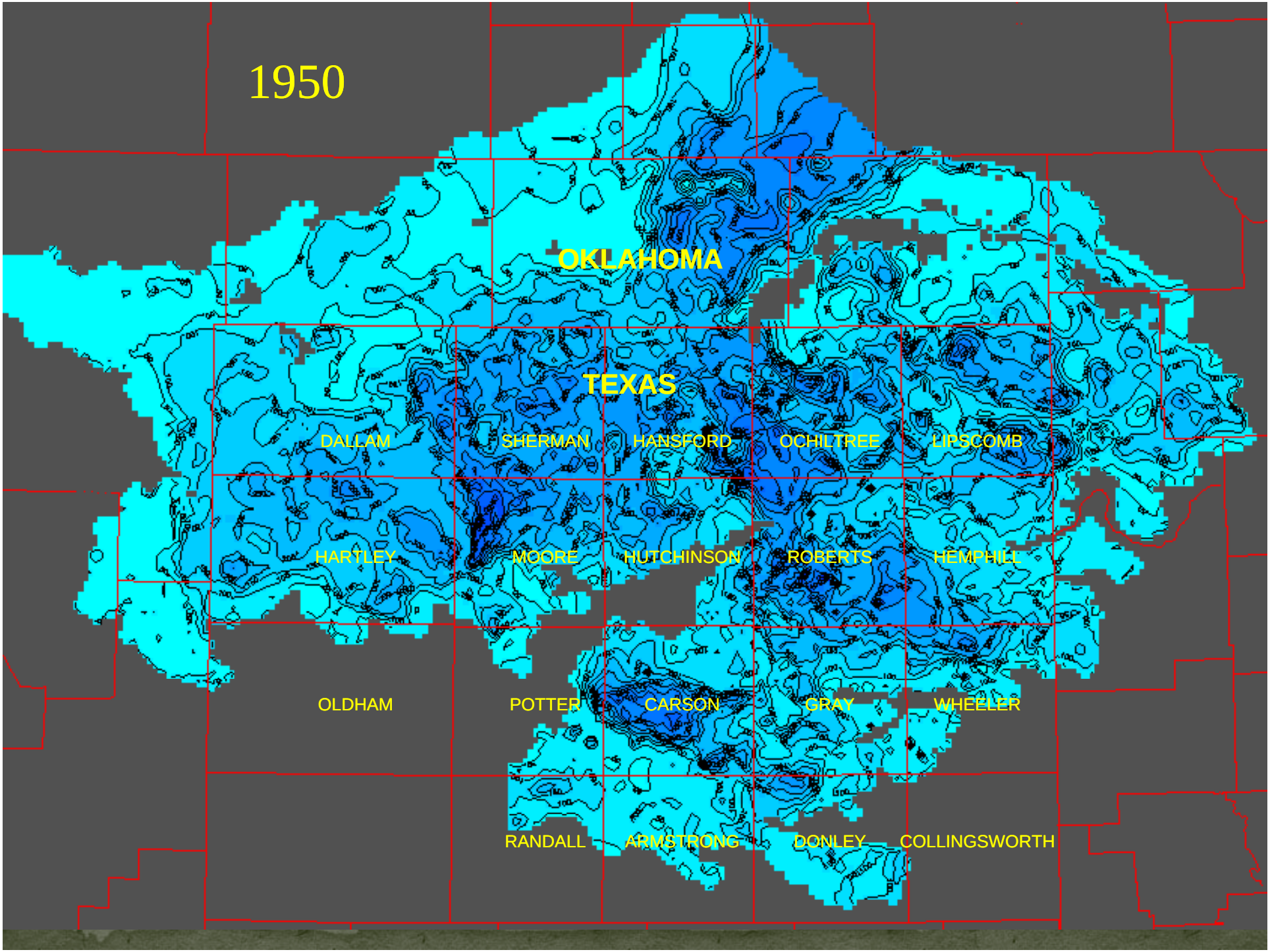
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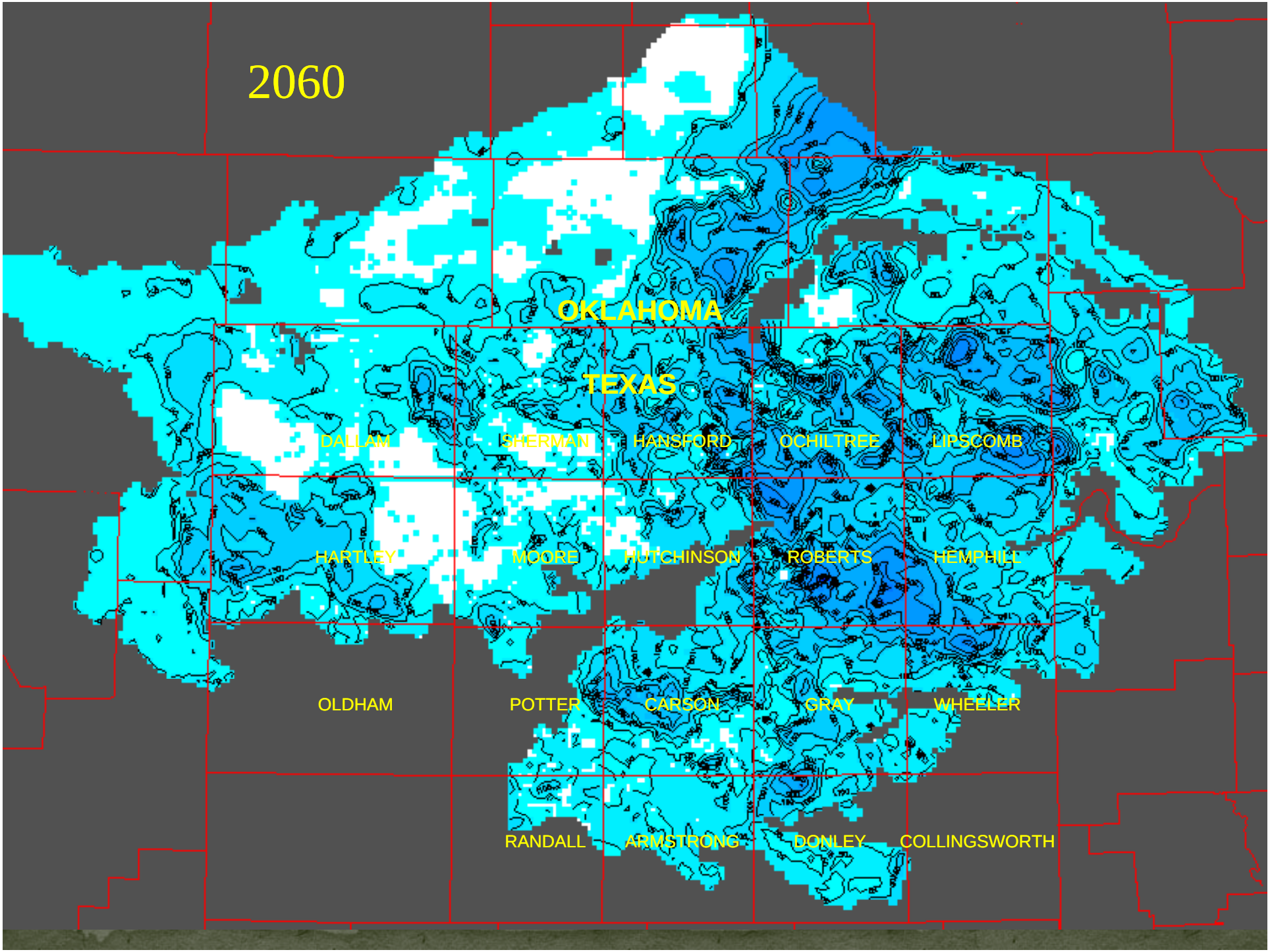
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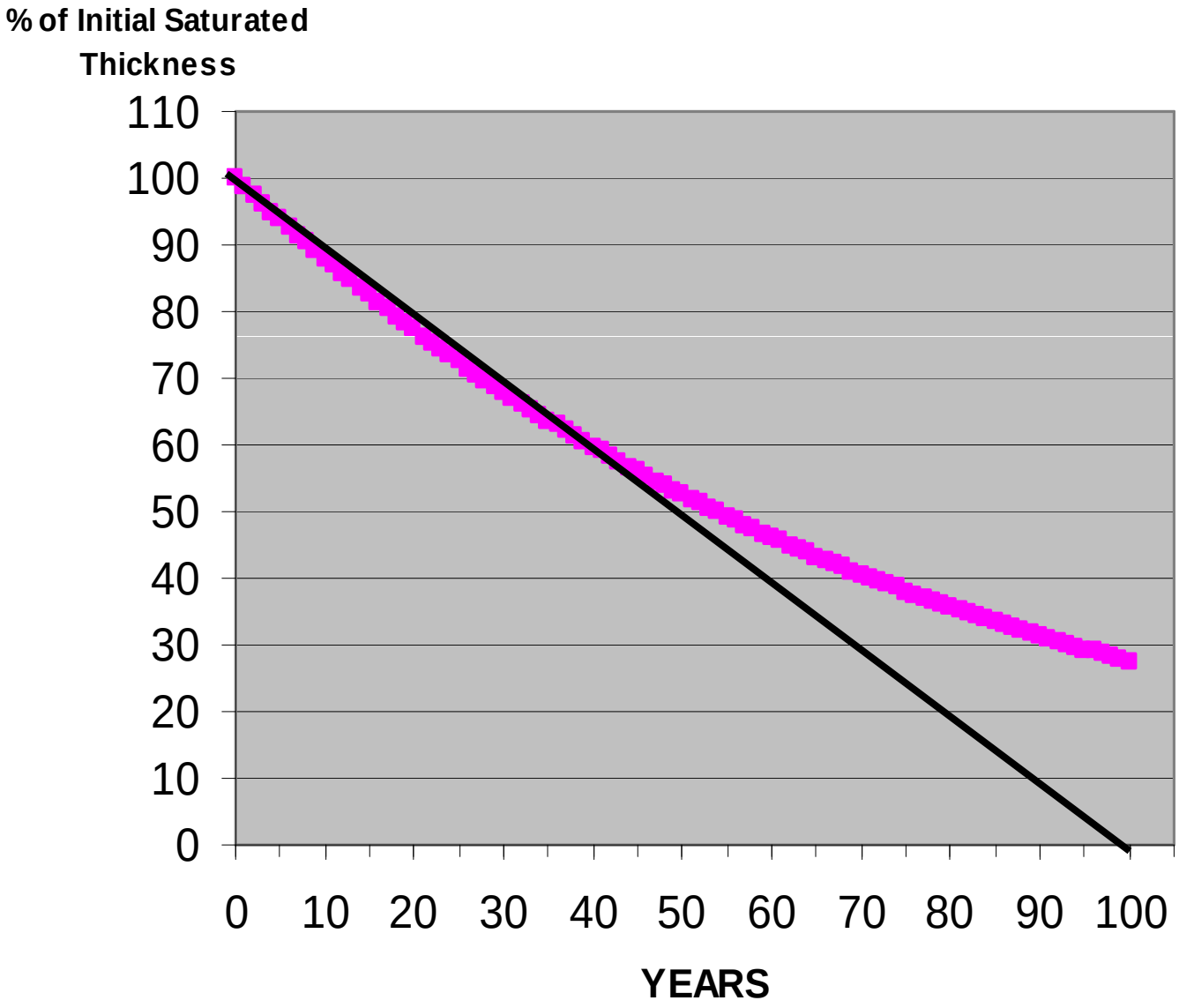
The PGCD 50/50 Management Standard

At least 50% of the current saturated thickness of the aquifer must remain after 50 years.

DECLINE IN SATURATED THICKNESS



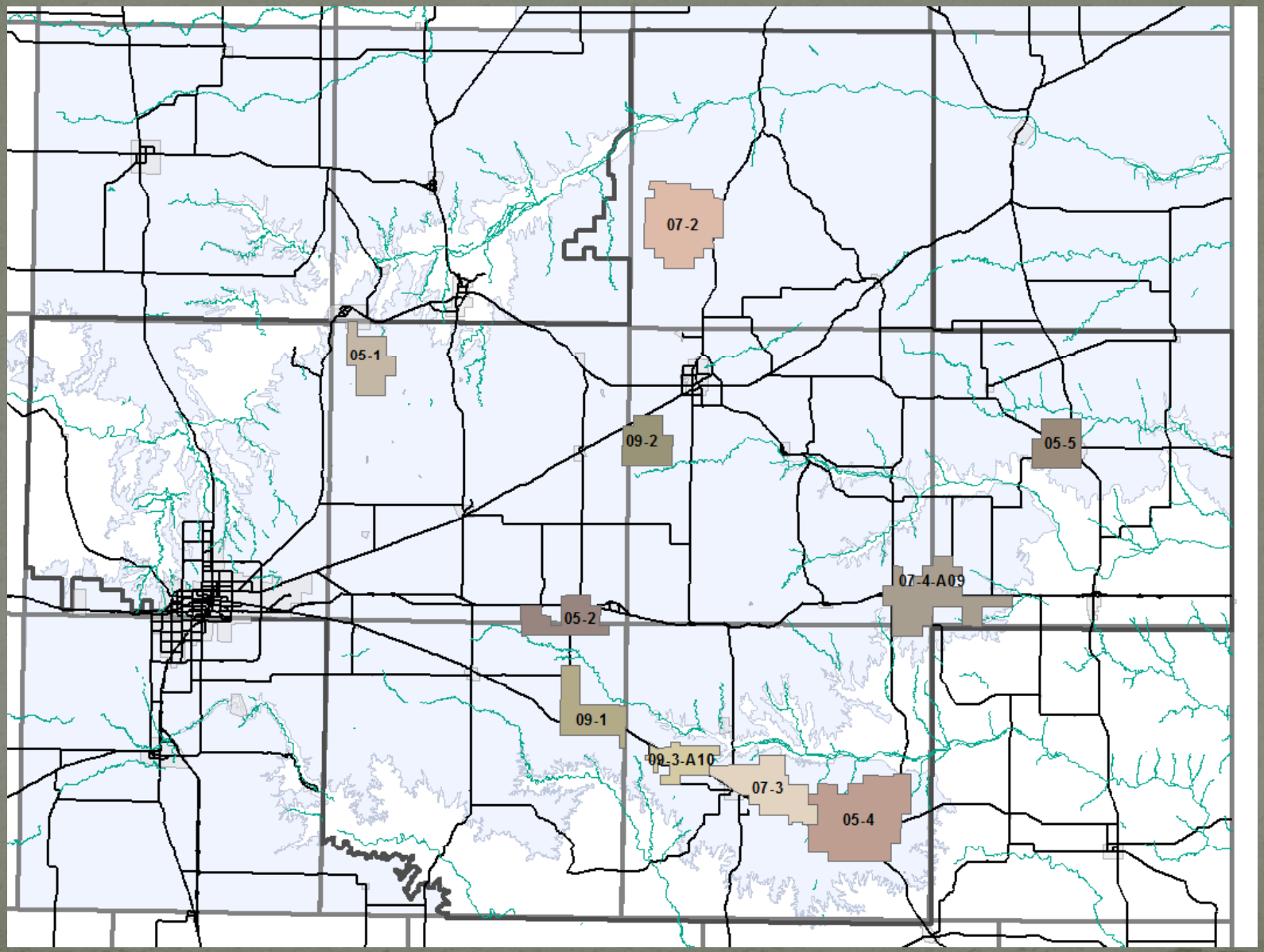
PINK LINE = 1.25% annual decline (base recalculated every 5 yrs)

BLACK LINE = 1% annual decline

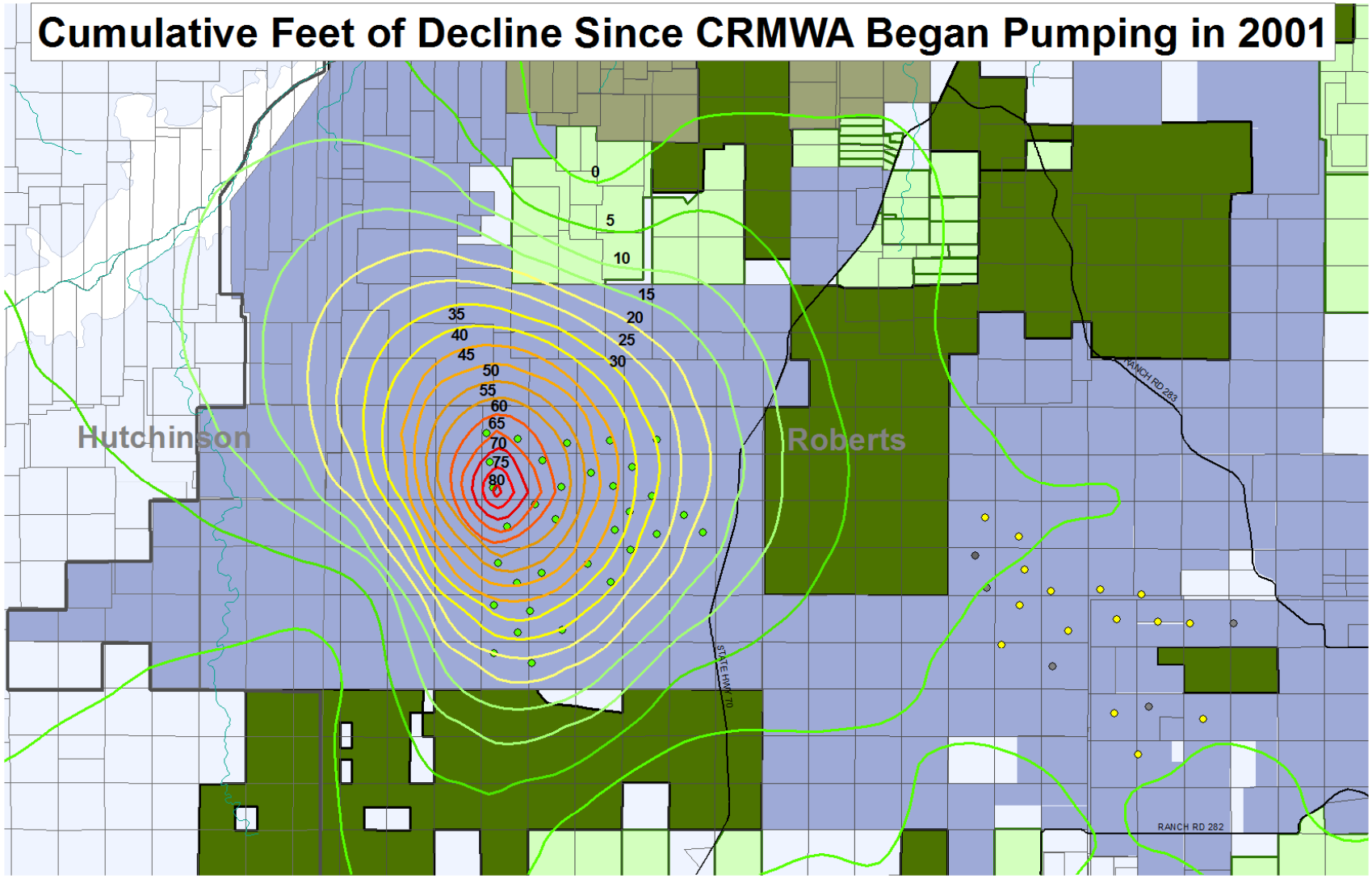
Depletion Rule Implementation

- Study Areas can be created around any area that exceeds the 1.25% decline rate
  - Can result in mandatory metering
  - Extra measurements taken throughout the year
- Conservation Areas can be created if:
  - An area has been in a Study Area for at least 2 years
  - AND breaks the cumulative decline trendline
  - Can result in production limitations

Current Study Areas



2010 Feet of Decline



Programs

Offered to Encourage Water Conservation

Program – Ag Loans

- The state has a program allowing water districts to borrow low-interest money to use to encourage efficient water use.

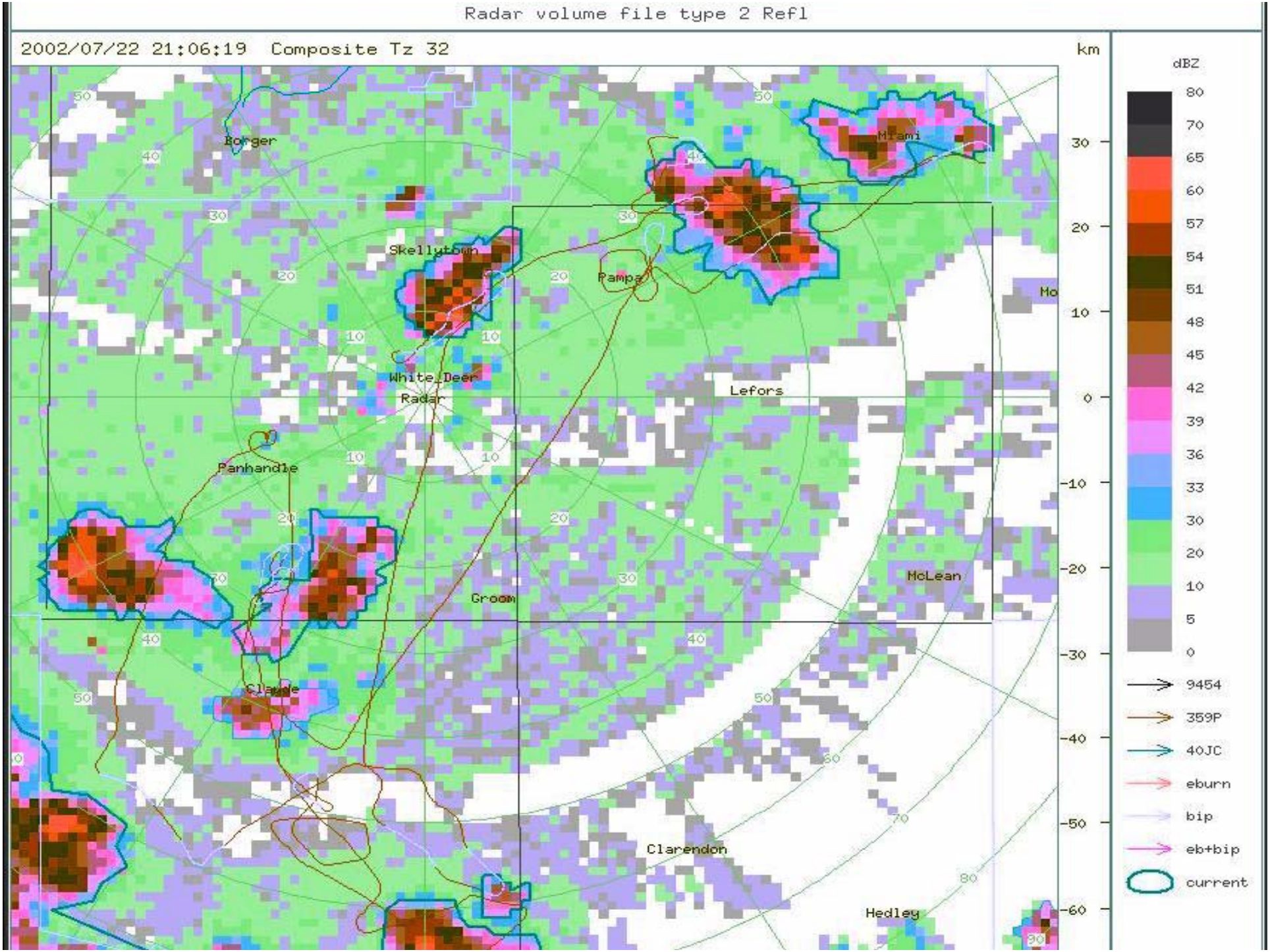
- The District loans funds to farmers for LEPA sprinklers at a low interest rate.

Program – Education

- Every year the District tries to visit every 5th grade in the District (49 of them) to give a conservation program.
- District staff also attend fairs, ag days, and civic group meetings to give conservation presentations.
- The District awards scholarships to 3 graduating seniors based on academic merit and an essay.

Program – Weather Modification

- From April to September, two pilots and a meteorologist operate a cloud seeding program.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40JC
eburn
bip
eb+bip
current
Borger
Miami
Skellytown
Pampa
White Deer
Radar
Lefors
Panhandle
McLean
Groom
Claude
Clarendon
Hedley

Program – Flow and Efficiency Testing

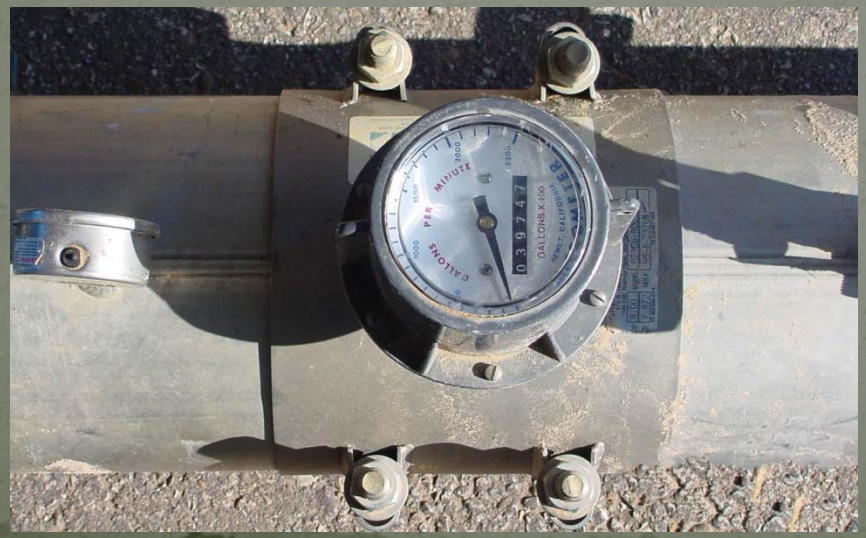
- This District flow tests wells and efficiency tests pumps on request.

Program – Water Quality

- We have an annual water quality program that tests ~350 wells on a biannual basis.
- We test the water quality on any well as requested.

Program - Metering

- Currently ~450 meters installed in the District.
- Most were voluntary cooperation.
- Rules approved December 2004 required a meter on all new wells with a discharge of 4" or greater at the producers expense.



Program – Water Level Measurements

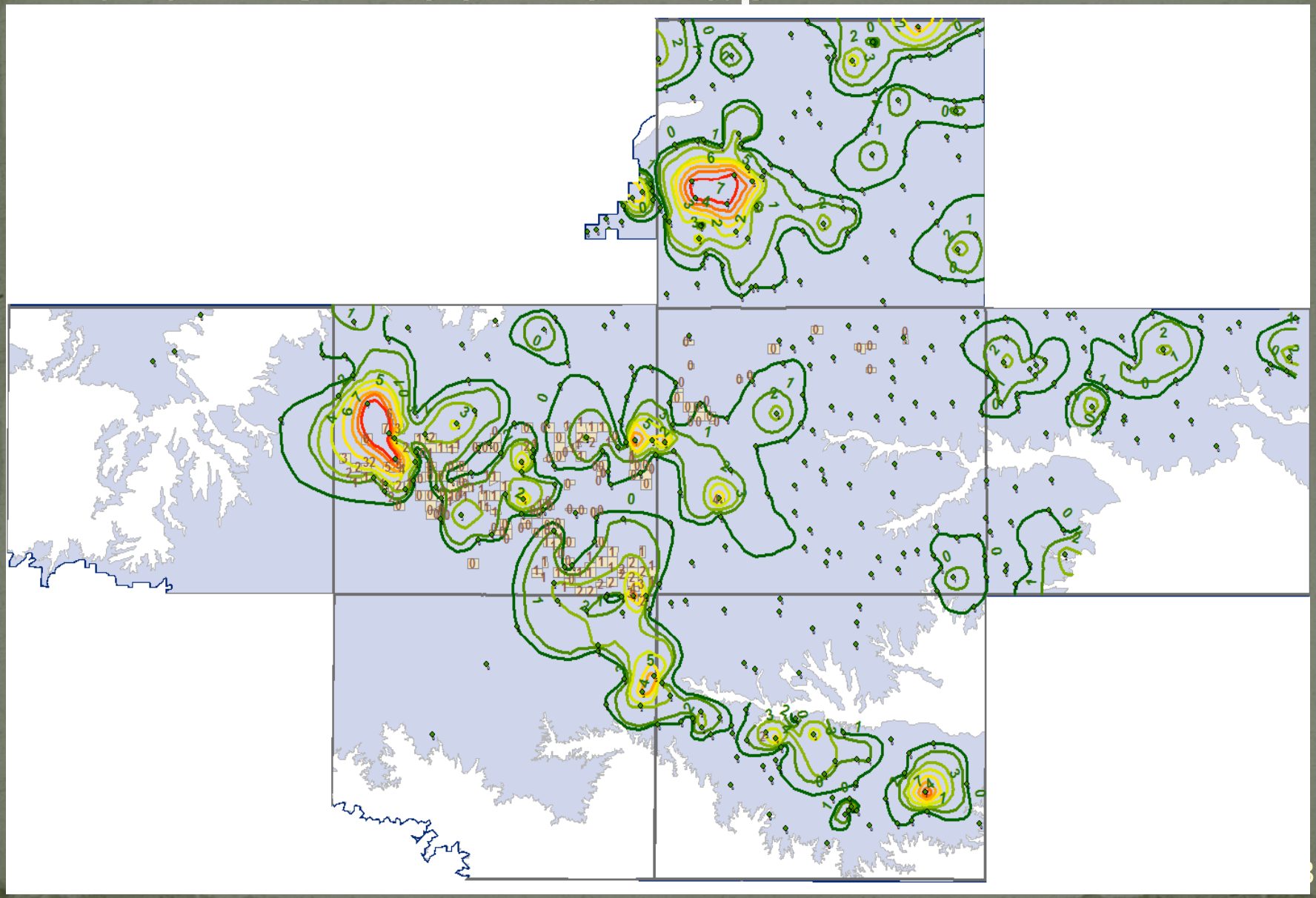
- The District annually measures the depth to water in ~850 wells.
- These measurements allow us to make maps and evaluate depletion.

Program – IRS Depletion

- The District was created to supply information to qualified irrigated farmers regarding the depletion of their water.

- Every year, the District makes, and the IRS approves, an 'assigned decline' map and sends letters out to enrolled farmers telling them how much depletion they may claim on their taxes.

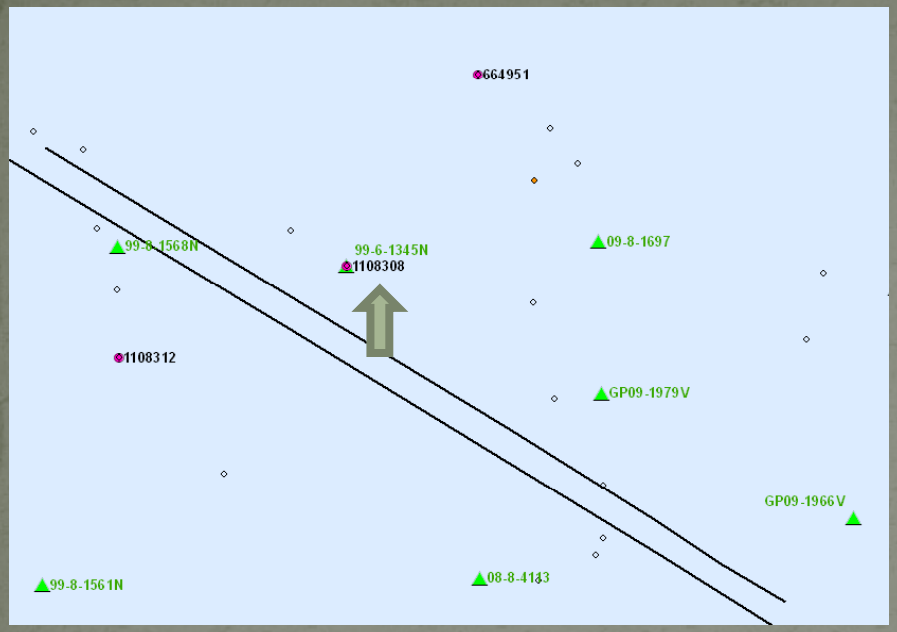
2010 IRS Decline Map



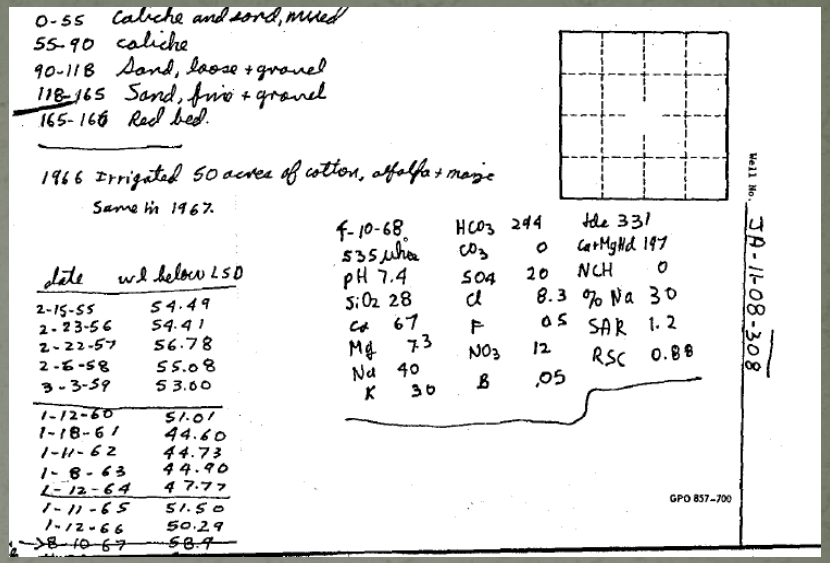
Program – Public Information

- Contour maps and well specific data for:
  - Saturated Thickness
  - Depth to Water
  - Redbed
- GIS Information available on-demand
- Satellite linked real-time monitoring wells
- Website

Public Information



District's GIS Mapping System



Well Log and Other State and District Records

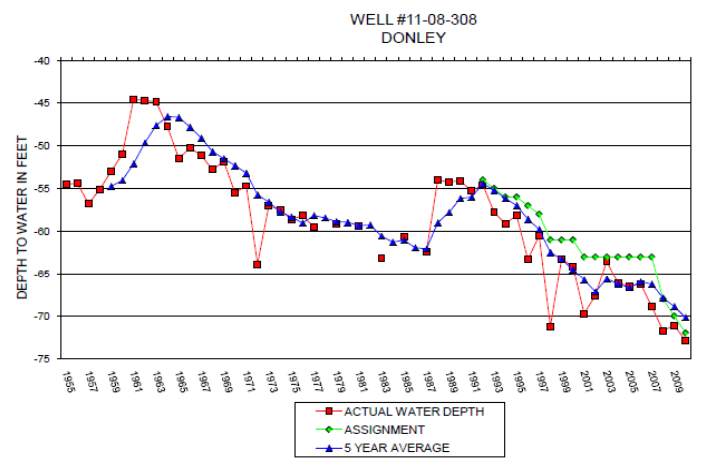
Site Number	State Well Number(s)	Soil
1108-3-M2	1108308	Miles Fine Sandy Loam

Meter	GPS	Last Reading	First Reading	diff.	Multiplication Factor	Correction Factor	Gals. Pumped
99-6-1345N	Lat 34 59 47	626910 -	273142 =	353768 X	100 X	0.978 =	34,598,510
	Long 101 01 03		Install Date 4/16/1999				

Crop	Galllons Pumped	Acre Feet
peanuts	34598510.4	106.18

Irrigated Acres	244
inches/acre	5.22
feet/acre	0.44

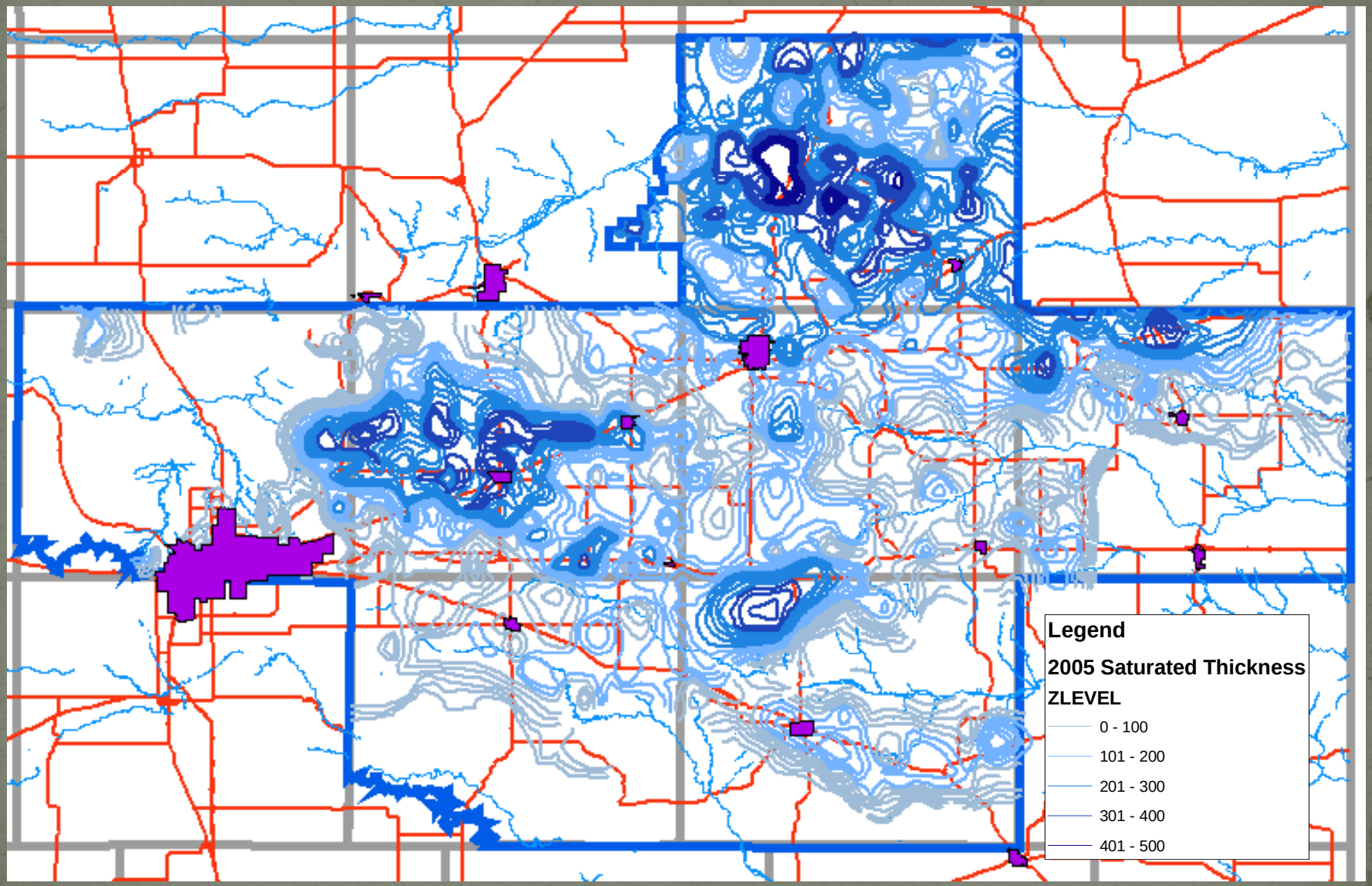
District's Production Report



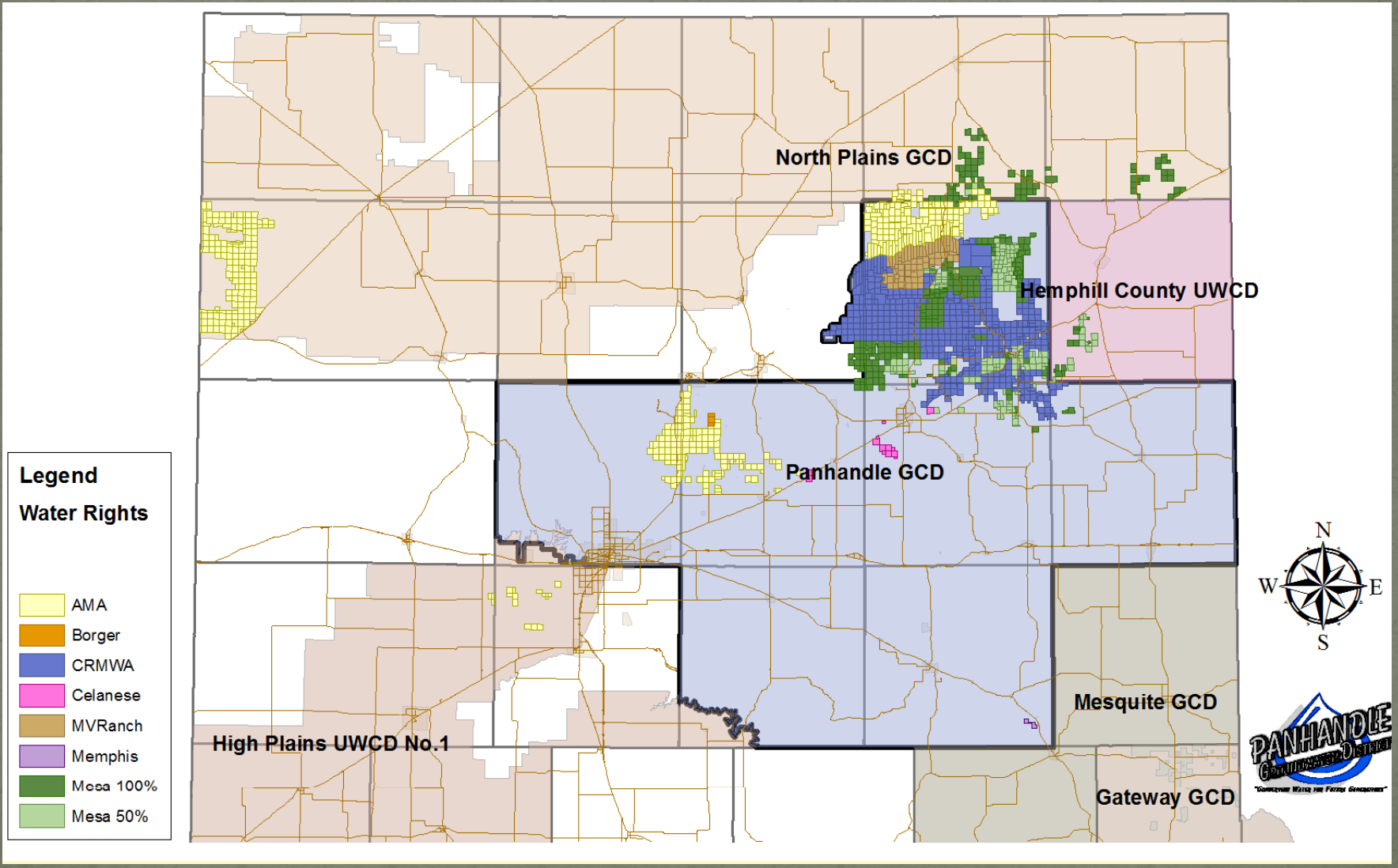
	Measurement	Year	Assignment
First Depletion Program Measurement	54.56	1992	54
Current Year Measurement	72.90		
Current - Initial (net measured change)	18.34 DECLINE		
Total Assigned Decline to Date	18		
Difference	-0.34 underassigned		

District's Hydrograph

2005 Saturated Thickness



Severed Groundwater Rights



Monitoring Wells

Real-Time Satellite Monitoring Well

Data Logging Well

Well Camera

Aquifer Testing

- Measuring drawdown and recovery allows us to calculate aquifer characteristics.

Legislative Monitoring and Testimony

- SB 332 – Fraser - Relating to the vested ownership interest in groundwater beneath the surface and the right to produce that groundwater.
- SB 180 – Estes - Relating to the use of eminent domain authority (HB 279 Geren identical)
- SB 429 - Nichols - Relating to notification of applications for permits for certain injection wells. (HB 444 Creighton identical)
- HB 849- Miller, Sid - Relating to notice of an application for a permit to dispose of oil and gas waste in a commercial disposal well.
- SB 430 - Nichols - Relating to written notice to a groundwater conservation district of groundwater contamination.

Legislative - continued

Bill Type	2011	2009	+/-
House Bills	3801	4697	-896
Senate Bills	1871	2439	-568
House Joint Resolutions	153	139	14
Senate Joint Resolutions	48	49	-1
Total	5873	7324	-1451

To avoid this…

...think about this.

Questions?

For more information

Web site www.pgcd.us

Phone 806-883-2501

Email cew@pgcd.us or acrowell@pgcd.us