Water Availability in the Beaver-Cache Planning Region

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May 18, 2016

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Outline

- Groundwater vs Stream Water
- Groundwater Law
- Groundwater Permitting
- Groundwater Availability from Basins within the Beaver-Cache Watershed Planning Region

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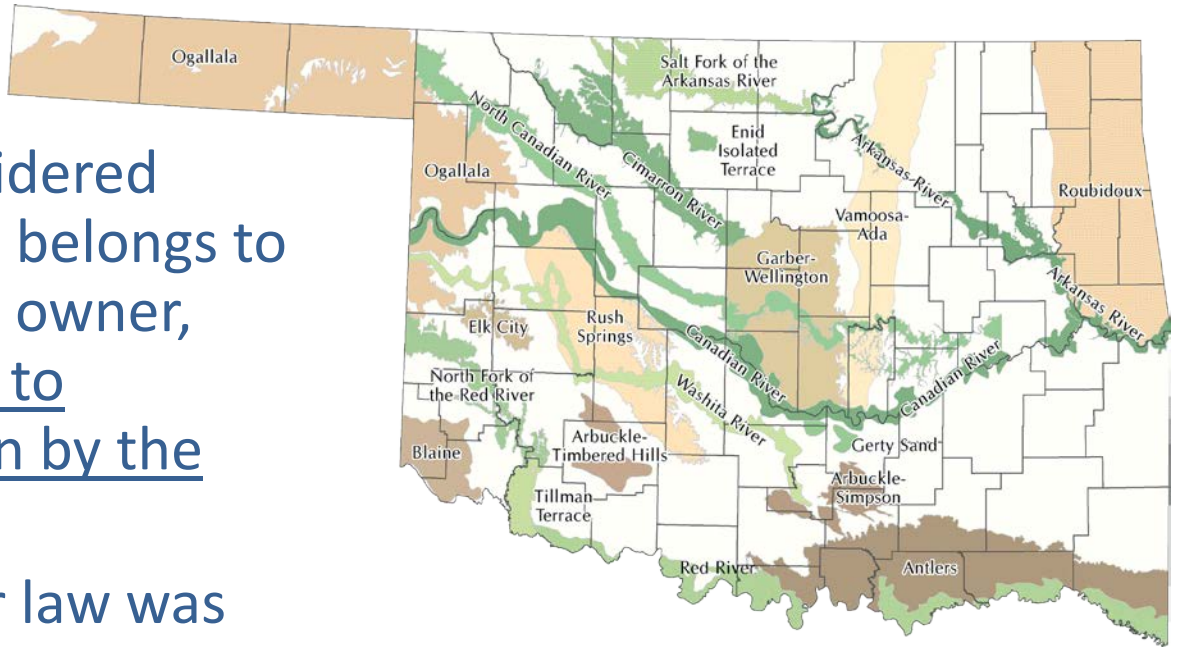
- Groundwater:
  - fresh water under the surface of the earth regardless of the geologic structure in which it is standing or moving outside the cut banks of any definite stream
- Stream or Surface Water:
  - water in a “definite stream” (a watercourse in a definite, natural channel, with defined beds and banks, originating from a definite source or sources of supply);
- Domestic/household uses exempt
- <u>No priority of uses for Groundwater</u>

Oklahoma Groundwater Law



- Groundwater is considered private property that belongs to the overlying surface owner, although it is <u>subject to reasonable regulation by the OWRB.</u>
- Current groundwater law was established in 1973 as a <u>utilization law.</u>
  - Created for economic development; mining law allowing for depletion
  - Requires OWRB to base appropriation on yield study

Default Allocation =

2.0 acre-feet per acre of land overlying aquifer!

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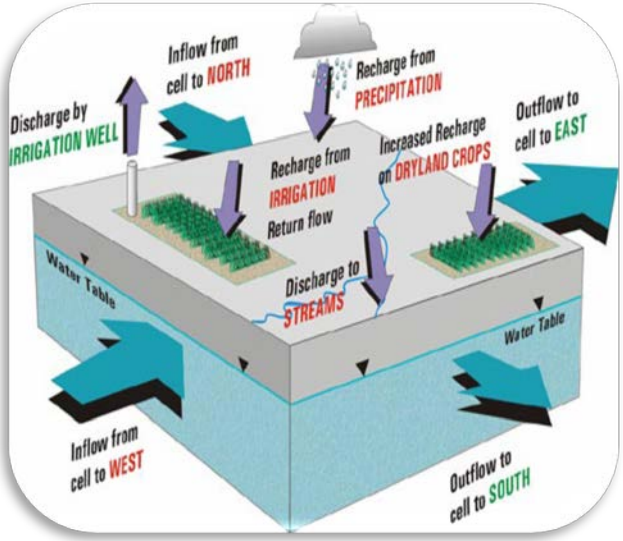
Four Points of Groundwater Law

If the Board finds that these four points of law have been met, "then the board shall approve the application and issue the appropriate permit."

1. The applicant **owns or leases the land** from which the water will be withdrawn
2. The dedicated **land overlies a fresh groundwater basin**
3. The water will be put to **beneficial use**
4. **Waste** will not occur
    - Waste by depletion
    - Waste by pollution

Groundwater Allocation

For permitting purposes, law considers the amount of water in entire basin…



Maximum Annual Yield

Determination by the Board of the <u>total</u> amount of fresh groundwater that can be produced from a basin or sub basin allowing a min. 20-year basin life

Equal Proportionate Share (EPS)

Each landowner has right to a share of the MAY equal to his ownership of land overlying the basin

Groundwater Permitting

In Basins with MAYs determined:

- **Regular** Permits (permanent) based on MAY
- Current range 0.2 ac-ft/acre in the Arbuckle-Simpson up to 2.1 ac-ft/acre in the Antlers Sandstone formation
- Requires **1,320 feet (bedrock)/660 feet (alluvium) of spacing** between wells (exceptions allowed in rule)

In Basins without MAYs determined:

- **Temporary** Permits for 2 ac-ft/acre (if applicant can show beneficial use and no waste)
- No spacing requirements

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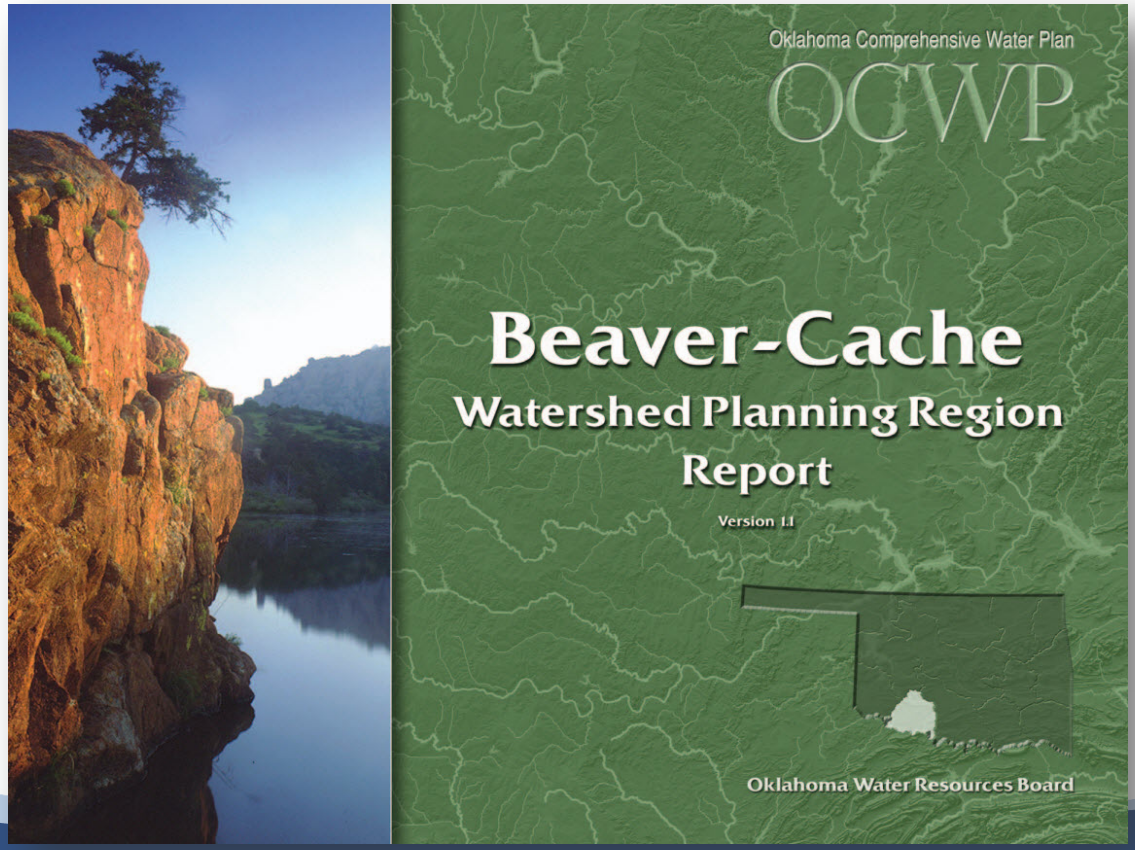
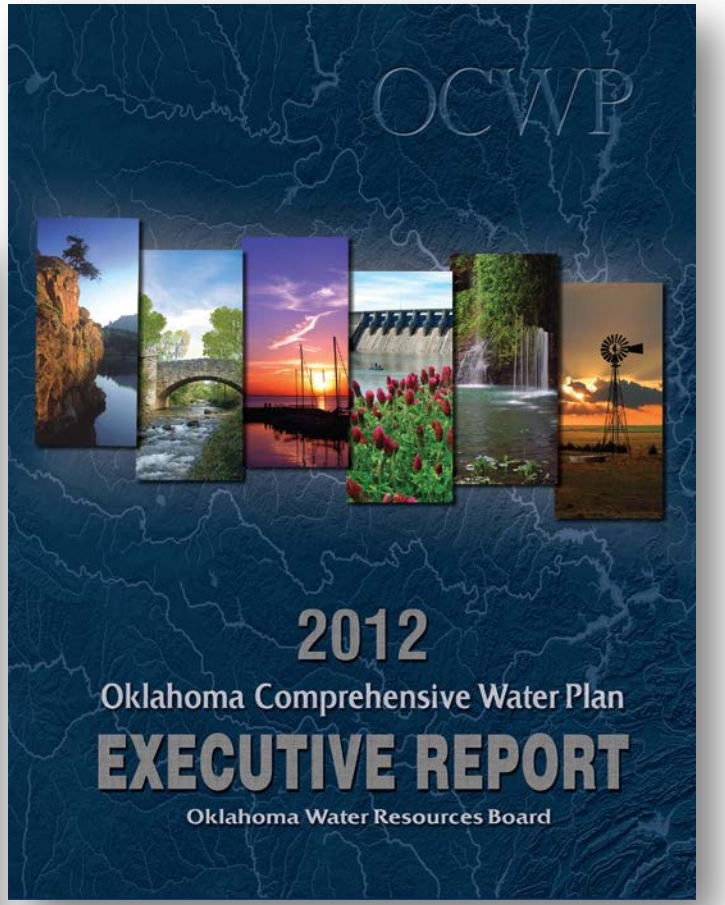
- "Reported" Annual Withdrawals (OWRB, 2013):
  - State Total Water Use = 2,195,362 ac-ft
    - Surface Water = 998,158 ac-ft
    - Groundwater = 1,197,204 ac-ft
  - Public Water Supply (Total) = 731,528 ac-ft
  - Irrigation (Total) = 1,172,655 ac-ft

- Irrigation accounts for ~72% of groundwater withdrawals

OCWP – Beaver-Cache Region





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Oklahoma Watershed Regions

For more information please visit the OWRB's web site at: (http://www.owrb.ok.gov) 10/04/2011

State of Oklahoma
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WATER RESOURCES BOARD
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Regional Overview

- Includes eight watershed basins (24-31) covering approx. 3,288 square miles
- Includes all or part of Tillman, Caddo, Comanche, Cotton, Grady, Stephens, & Jefferson counties

Current Water Demand:	44,590 acre-feet/year (2% of state total)
Largest Demand Sector:	Municipal & Industrial (55% of regional total)
Current Supply Sources:	64% SW 19% Alluvial GW 17% Bedrock GW
Projected Demand (2060):	56,560 acre-feet/year
Growth (2010-2060):	11,970 acre-feet/year (27%)

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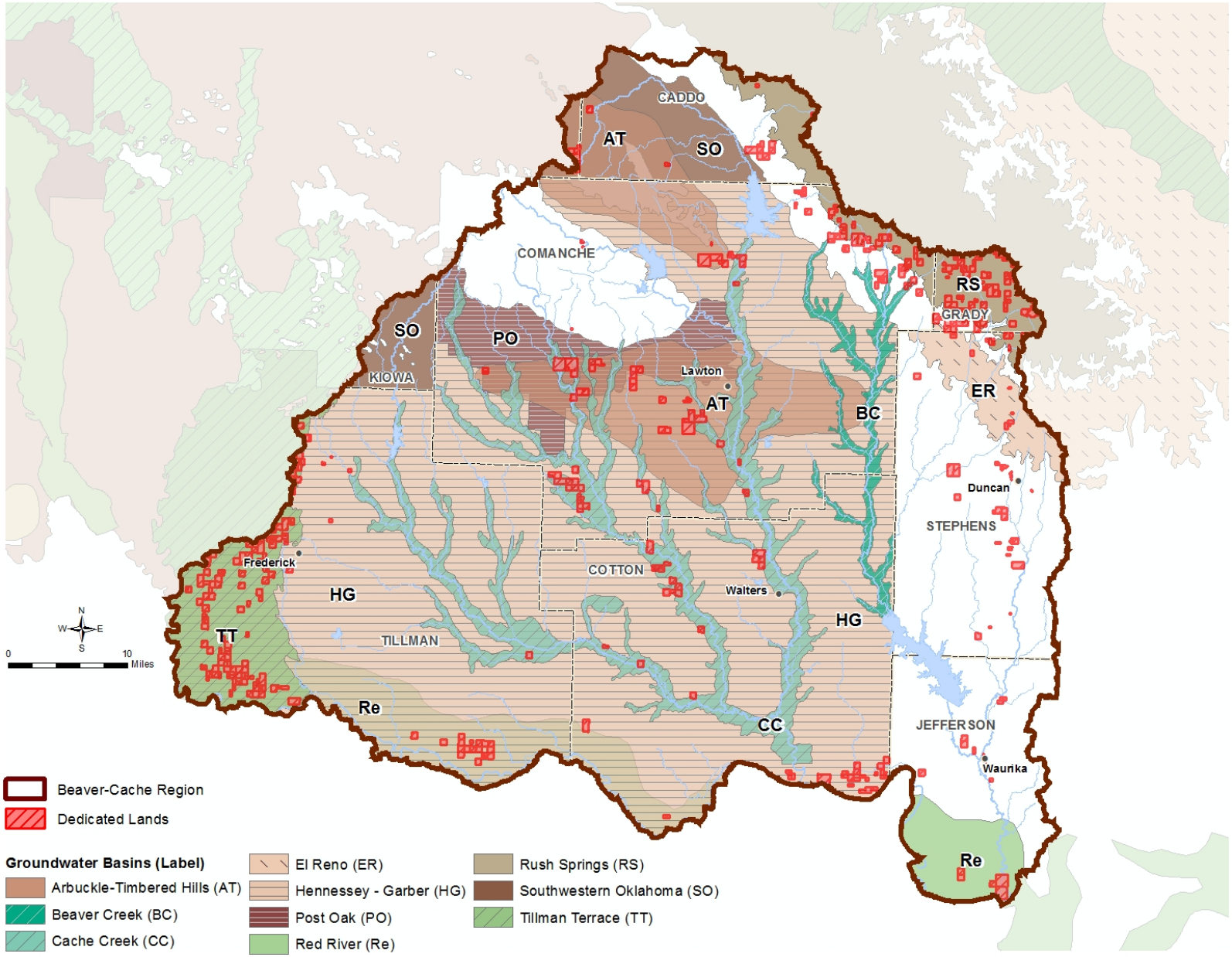
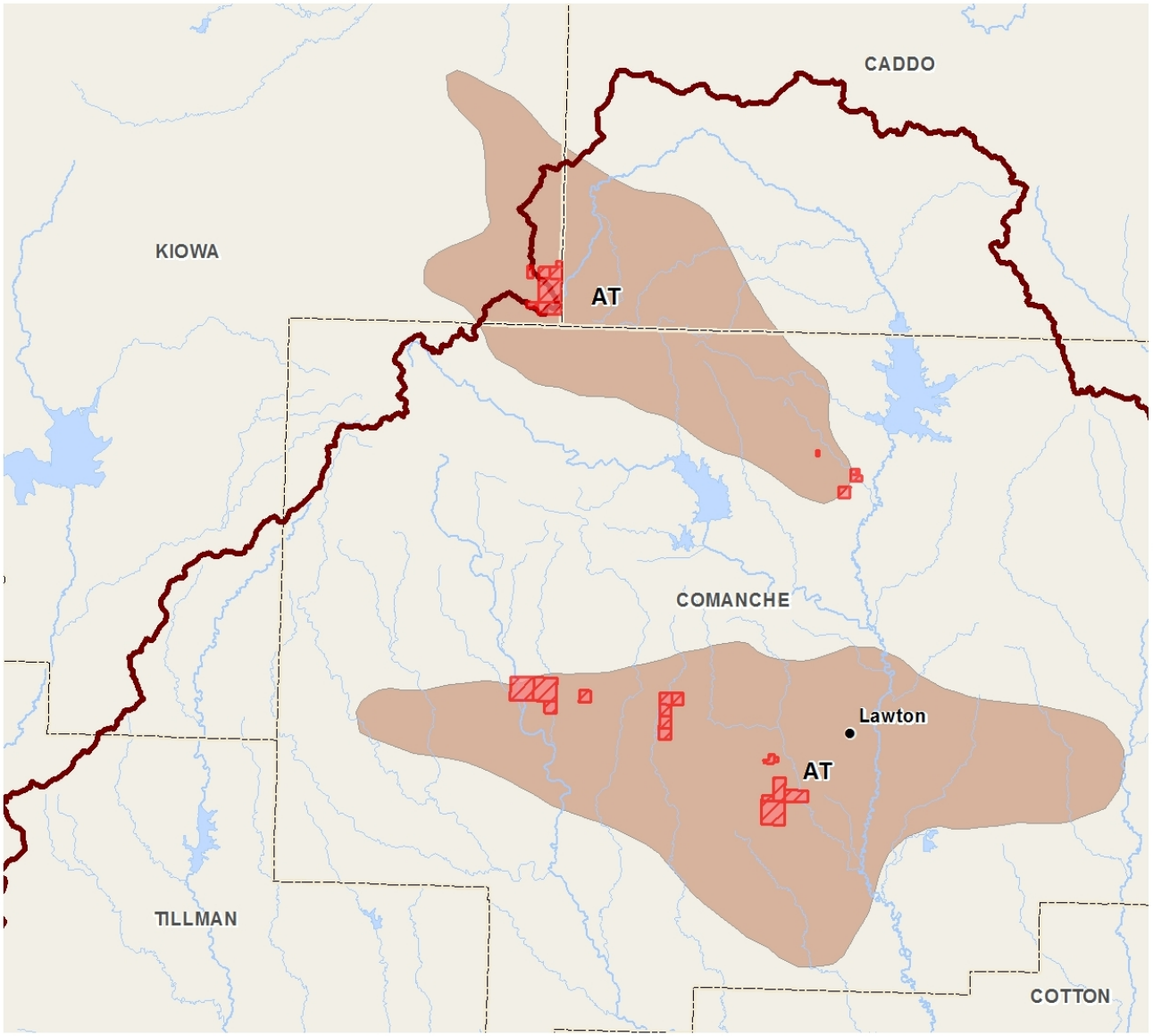
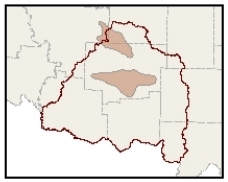
Beaver-Cache Groundwater



Arbuckle Timbered Hills Major Groundwater Basin





Dedicated Lands
Beaver-Cache Region
Arbuckle-Timbered Hills

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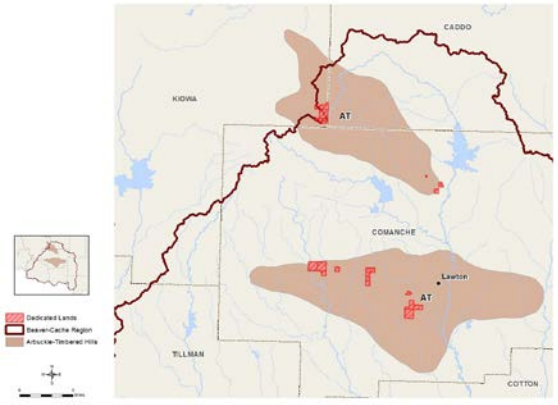
Arbuckle-Timbered Hills Data

- Basin Area Within B-C – 210,500 Acres
- EPS – 2.0 Acre Feet/Acre
- Dedicated Lands – 5650 acres
- Allocated Amount – 9900 Acre Feet
- Amount Available for Allocation – 410,000 Acre Feet
- Well Depth – 350 to 2000 Feet
- Yield – 25 to 400 GPM



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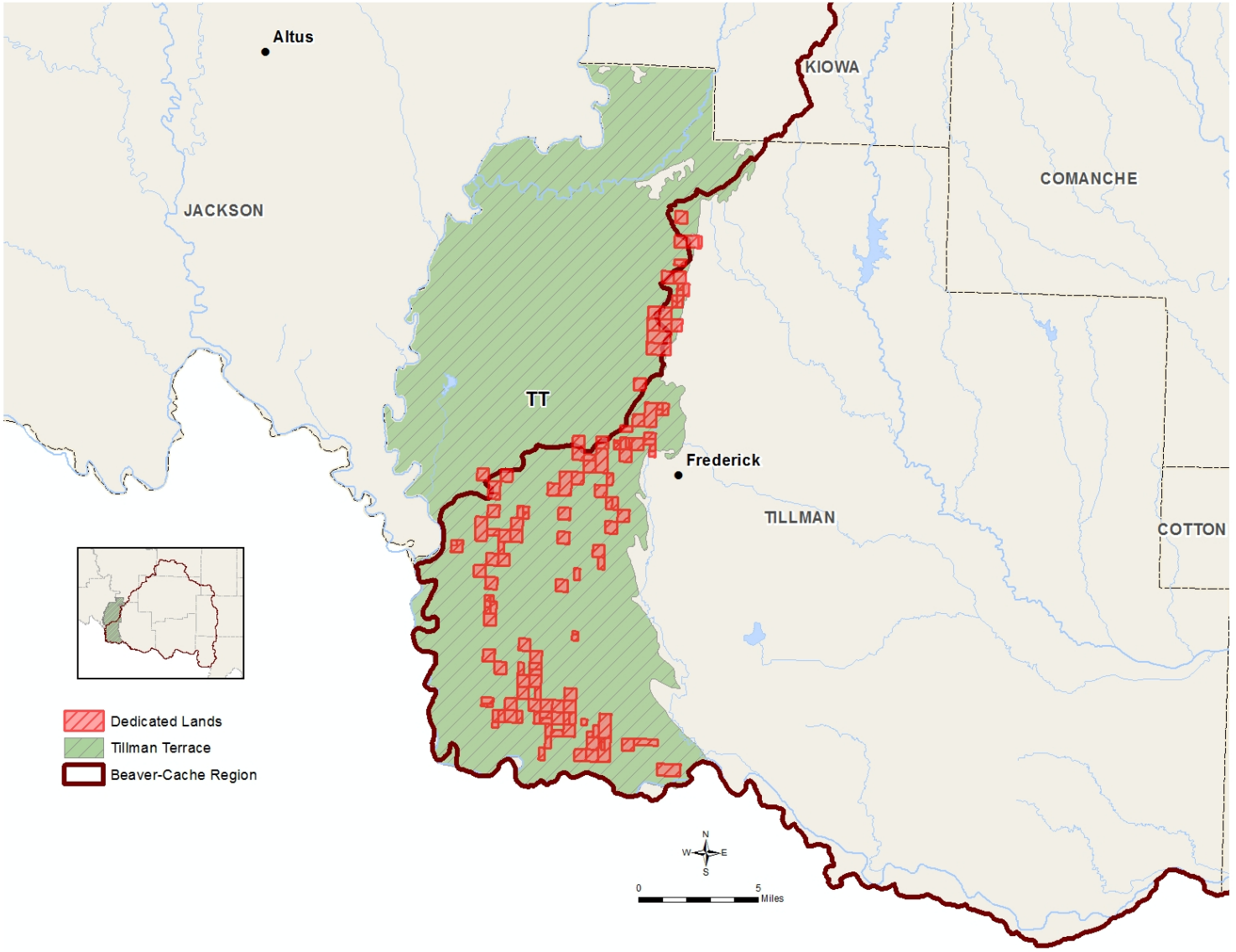
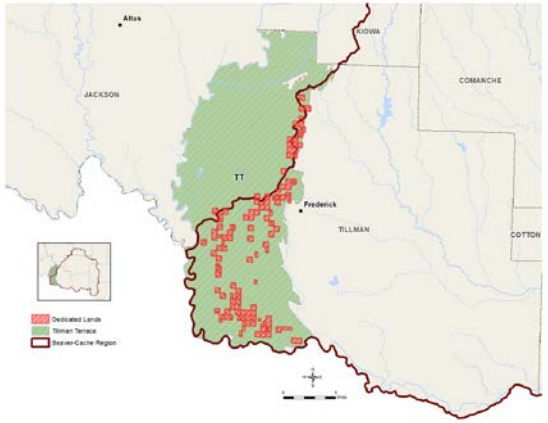
Tillman Terrace Major Groundwater Basin



Tillman Terrace Data

- Basin Area – 84,000 Acres
- EPS – 1.0
- Dedicated Lands – 19,500 Acres
- Allocated Amount – 14,400 Acre Feet
- Amount Available for Allocation – 64,000 Acre Feet
- Well Depth – 50 to 70 Feet
- Yield – 200 to 800 GPM



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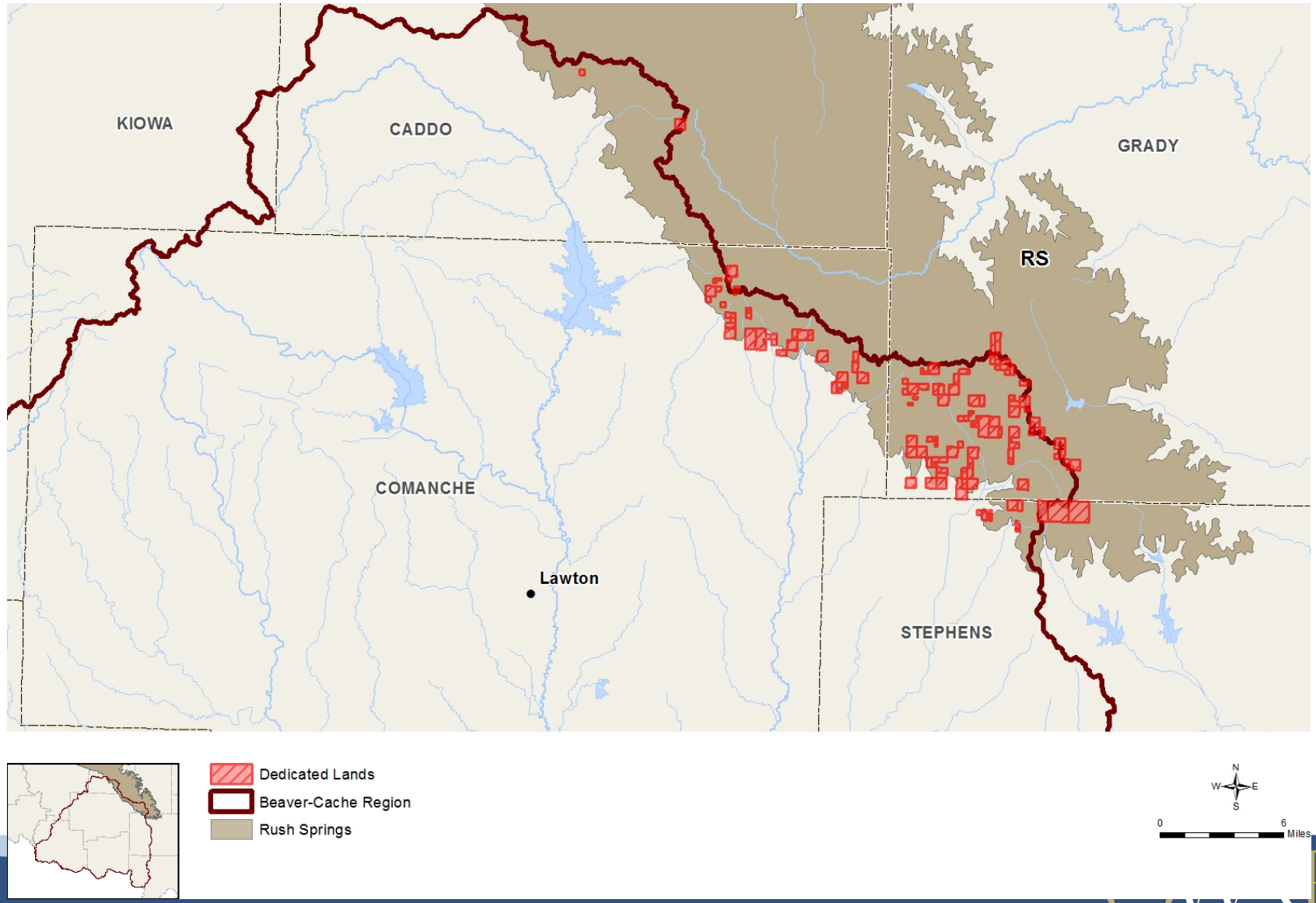
Rush Springs Major Groundwater Basin



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Rush Springs Data

- Basin Area Within the B-C Area - 63,000 Acres
- EPS – 2.0
- Dedicated Lands – 15,300 Acres
- Allocated Amount – 20,400 Acre Feet
- Amount Available for Allocation – 95,000 Acre Feet
- Well Depth – 100 to 500 Feet
- Yield – 25 to 500 GPM

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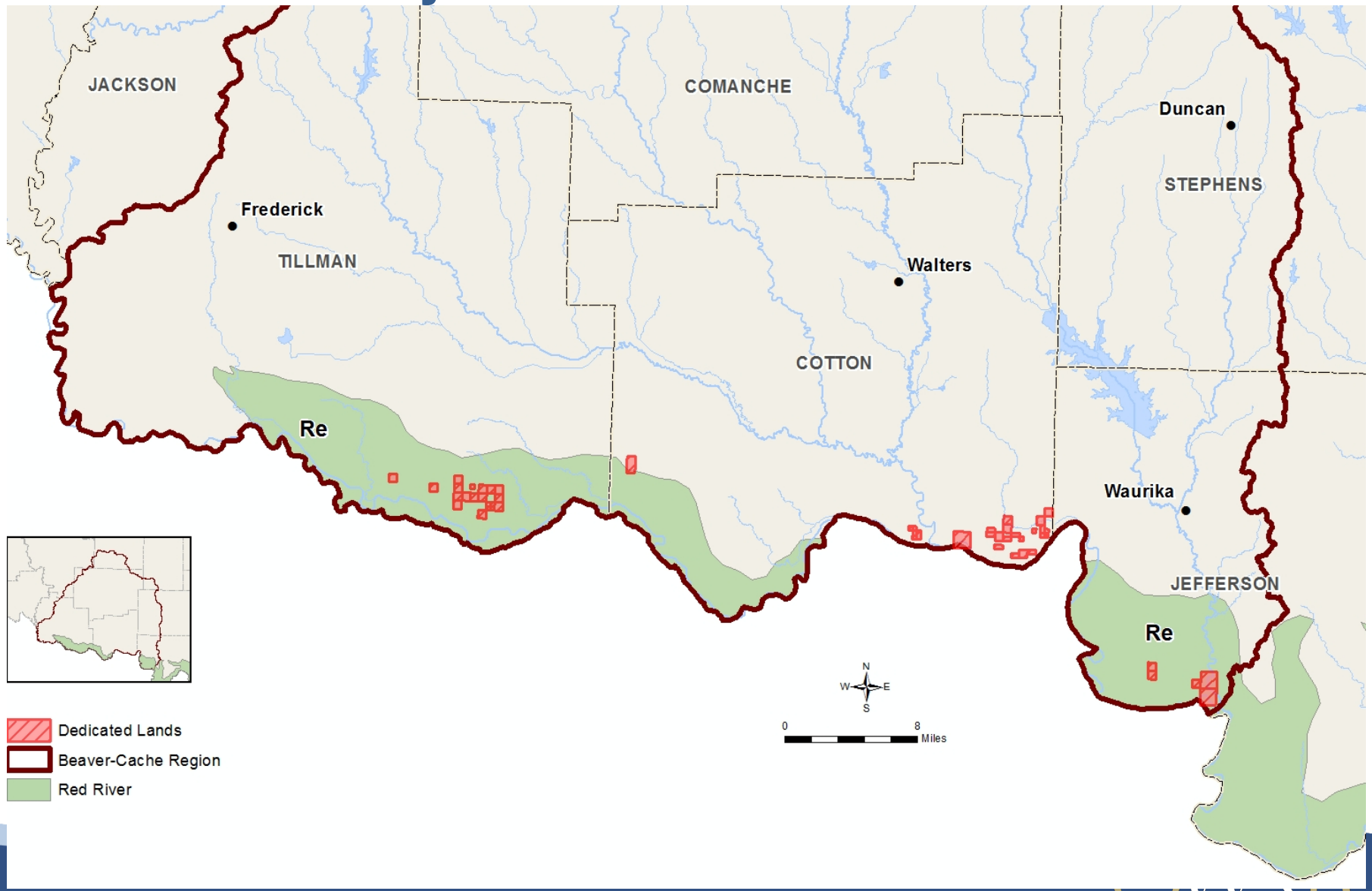
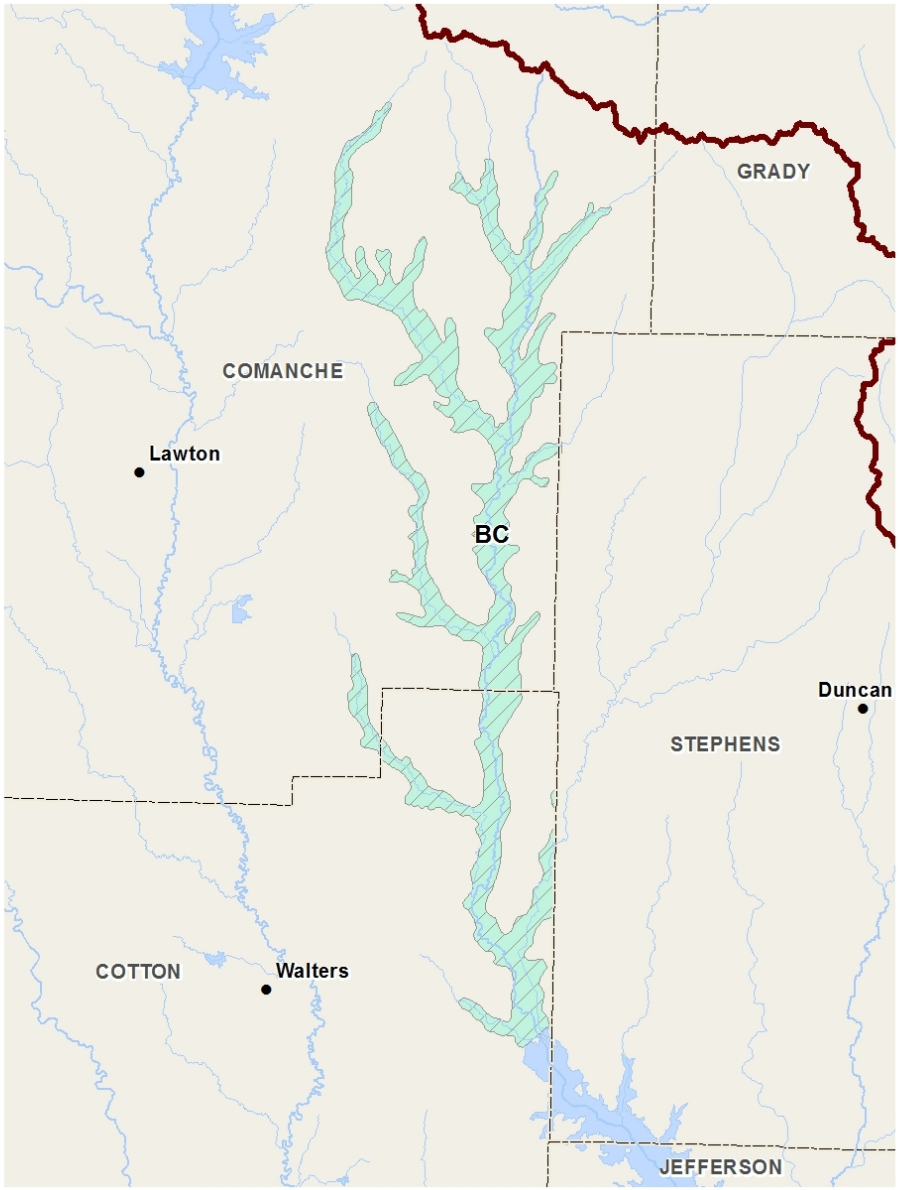
Red River Major Groundwater Basin



Red River Data

- Basin Area Within B-C Area – 139,000 Acres
- EPS – 2.0
- Dedicated Lands – 7,700 Acres
- Allocated Amount – 6,000 Acre Feet
- Amount Available for Allocation – 260,000 Acre Feet
- Well Depth – 80 feet
- Yield – 200 to 500 GPM

Beaver Creek Minor Groundwater Basin



Dedicated Lands
Beaver-Cache Region
Beaver Creek

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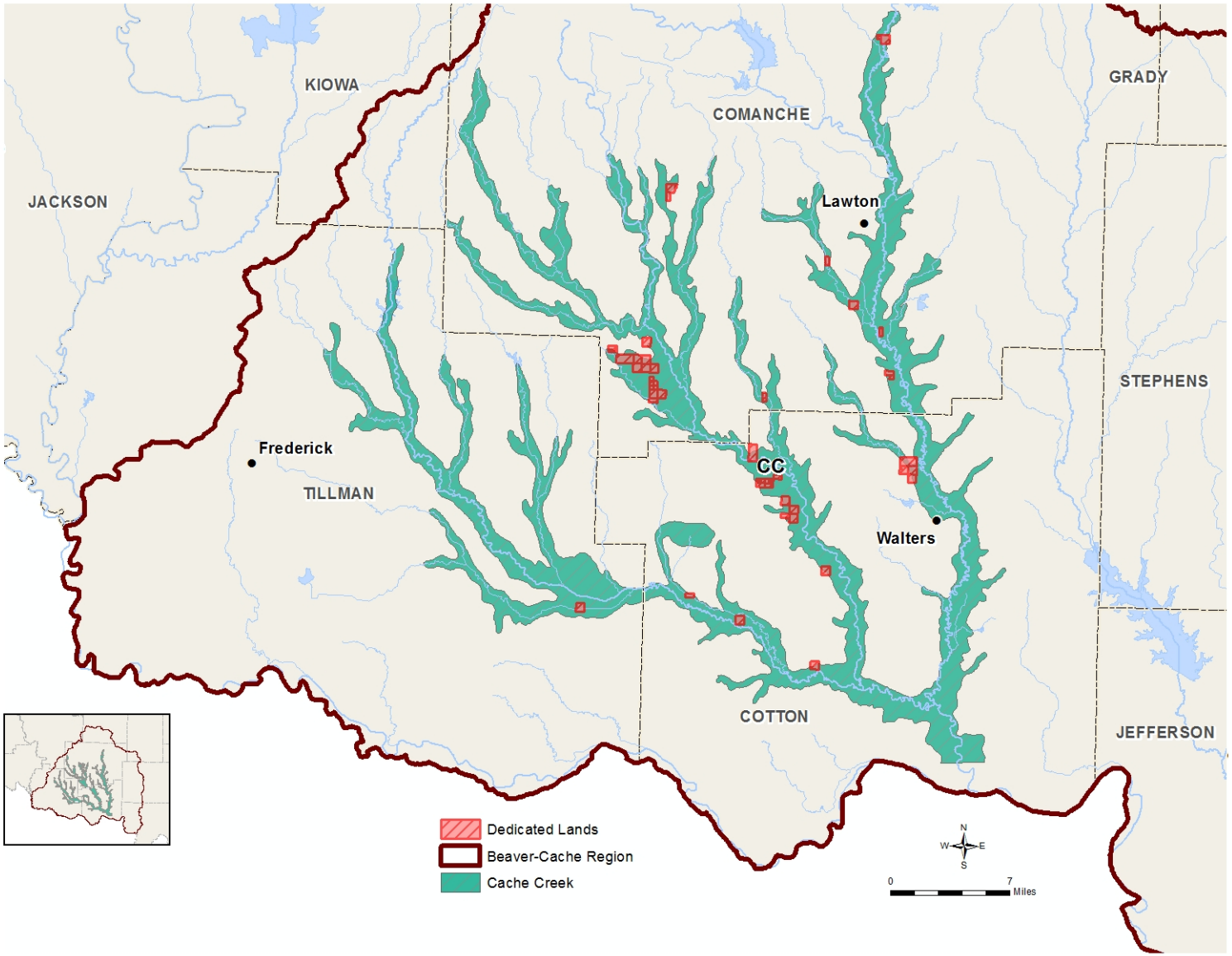
Beaver Creek Data

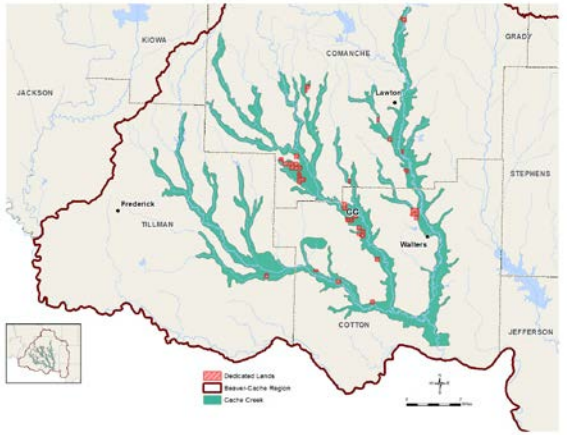
- Basin Area – 37,325 Acres
- EPS – 1.0 Acre Feet/Acre
- Dedicated Lands – 0.0
- Allocated Amount – 0.0
- Amount Available for Allocation – 37,325 Acre Feet
- Well Depth – 40 Feet
- Yield – 5 to 500 GPM

Cache Creek Minor Groundwater Basin

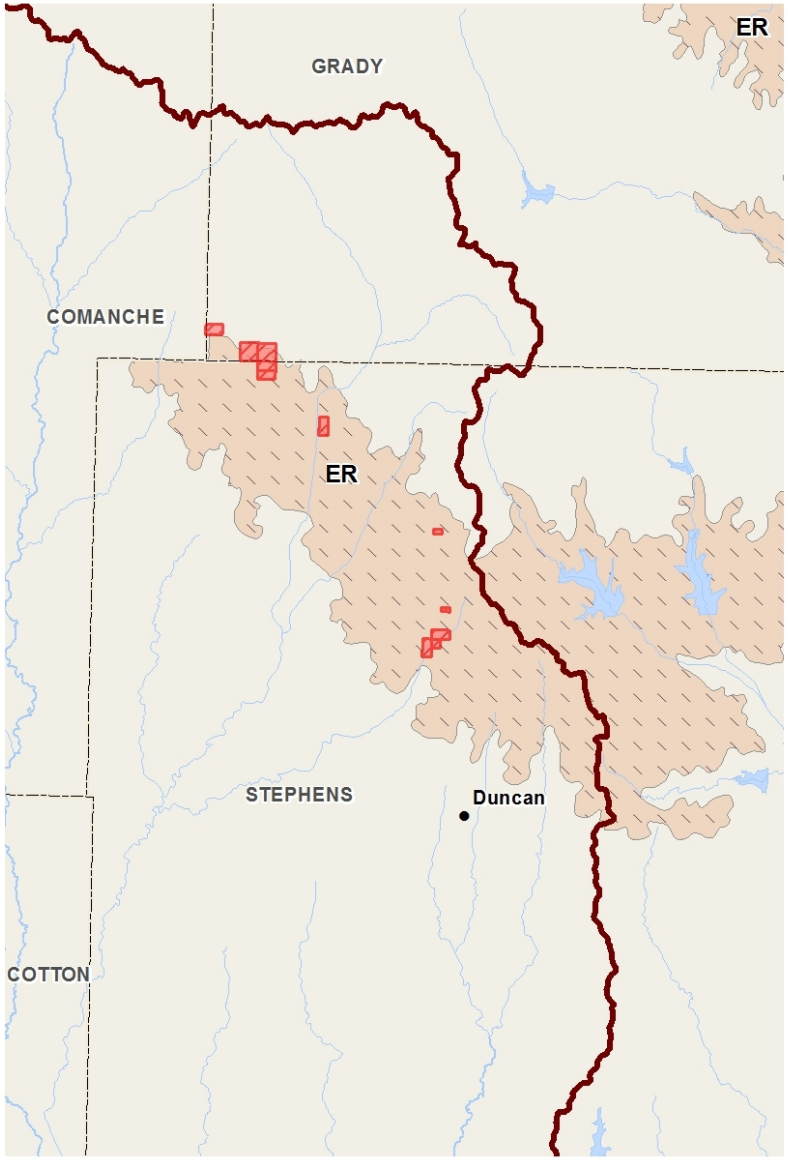


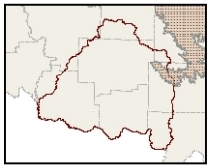
Cache Creek Data

- Basin Area – 185,000 Acres
- EPS – 1.0 Acre Feet/Acre
- Dedicated Lands – 6,300 Acres
- Allocated Amount – 6,300 Acre Feet
- Amount Available for Allocation – 178,700 Acre Feet
- Well Depth – 40 Feet
- Yield – 5 to 500 GPM



El Reno Minor Groundwater Basin





Dedicated Lands
Beaver-Cache Region
El Reno

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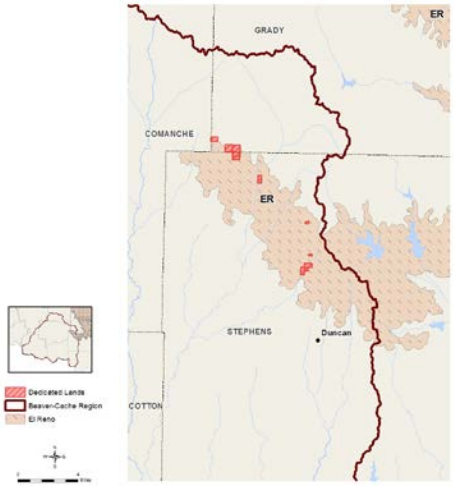
El Reno Data

- Basin Area – 42,000 Acres
- EPS – 2.0
- Dedicated Lands – 2980 Acres
- Allocated Amount – 4300 Acre Feet
- Amount Available for Allocation – 39,000 Acre Feet
- Well Depth – 100 to 300 Feet
- Yield – 5 to 200 GPM



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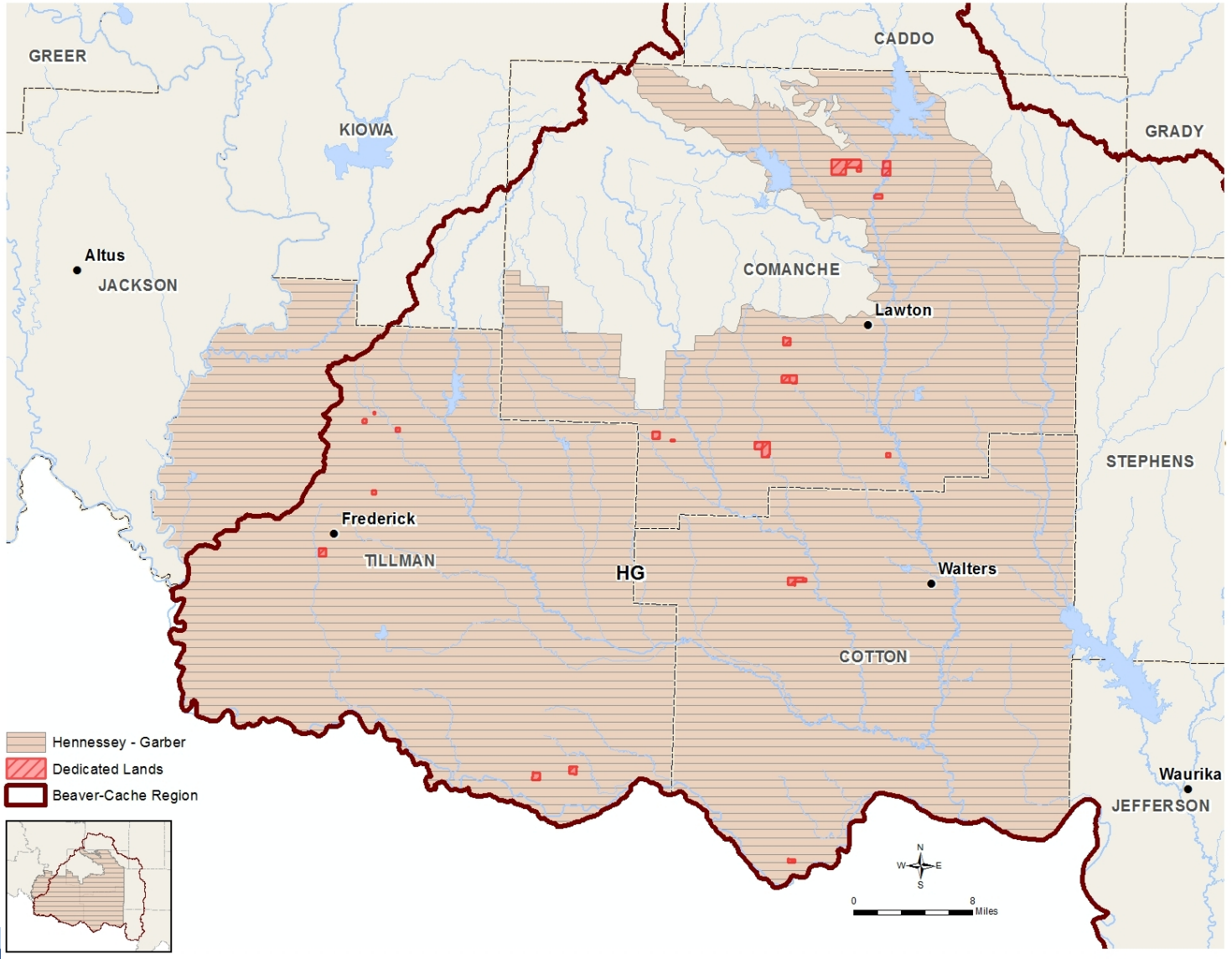
Hennessey-Garber Minor Groundwater Basin



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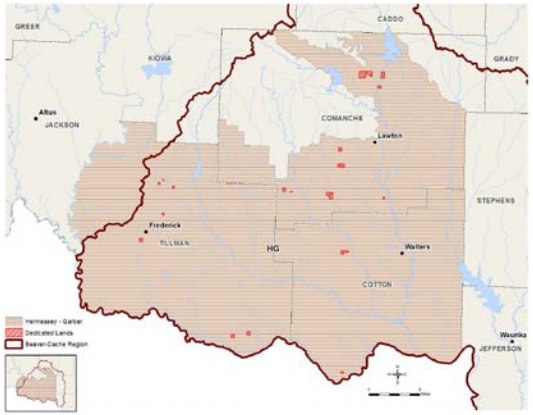
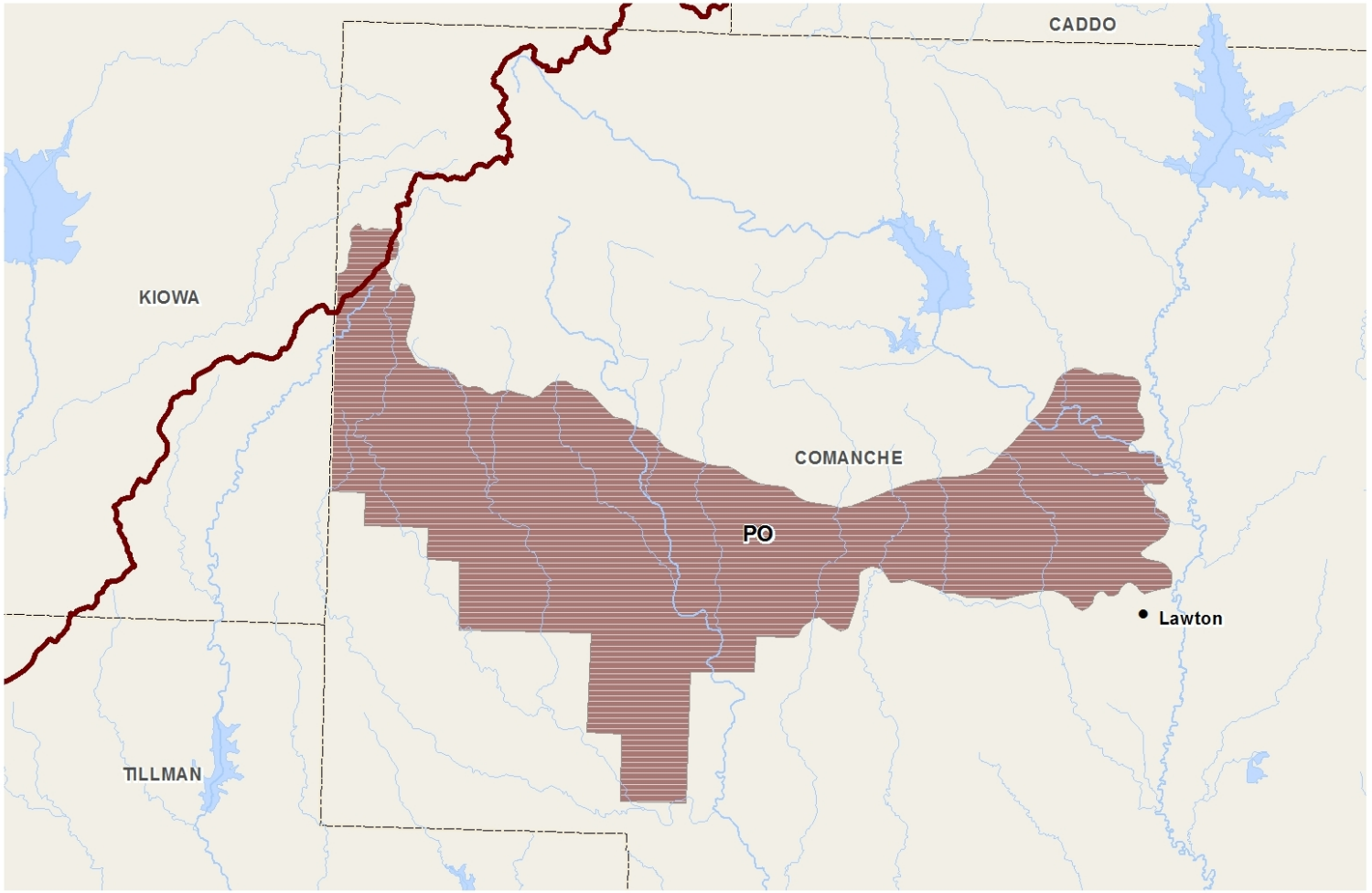
Hennessey- Garber Data

- Basin Area – 1,250,000
- EPS – 1.6
- Dedicated Lands – 3,300 Acres
- Allocated Amount – 3,700 Acre Feet
- Amount Available for Allocation – 1,100,000 Acre Feet
- Well Depth – 200 Feet
- Yield – 30 GPM



Post Oak Minor Groundwater Basin



Dedicated Lands
Beaver-Cache Region
Post Oak

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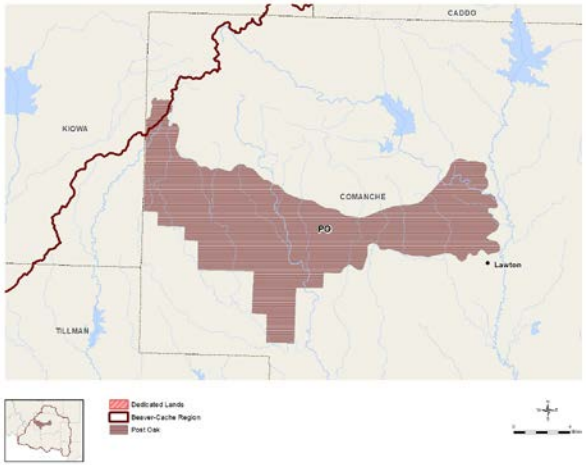
Post Oak Data

- Basin Area – 97,600 Acres
- EPS – 2.0
- Dedicated Lands – 1300 Acres
- Allocated Amount – 1700 Acre Feet
- Amount Available for Allocation – 192,600
- Well Depth – 500 Feet
- Yield - 40 GPM



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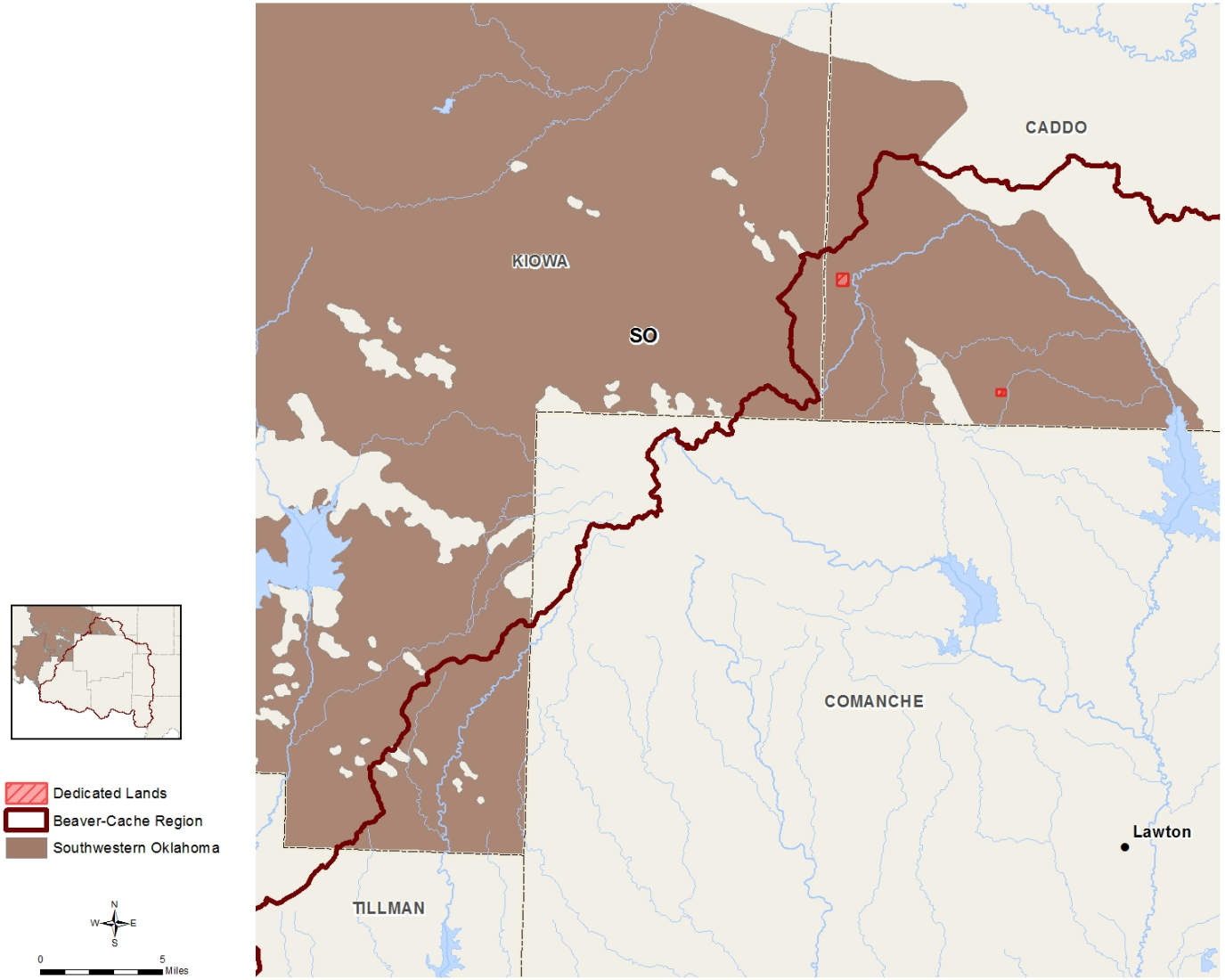
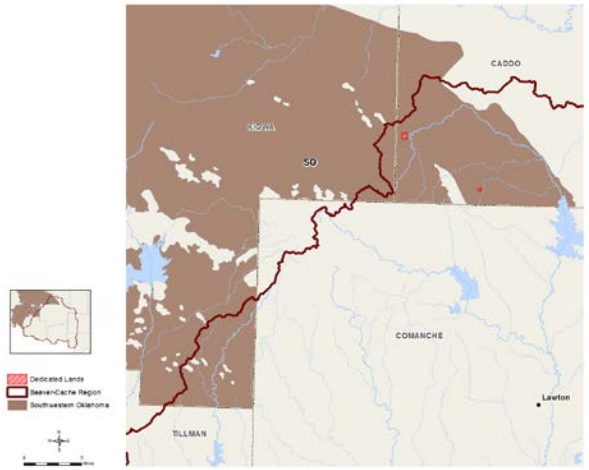
Southwestern Oklahoma Minor Groundwater Basin



Southwestern Oklahoma Data

- Basin Area – 105,000 Acres
- EPS – 2.0
- Dedicated Lands – 60 Acres
- Allocated Amount – 17.0 Acre Feet
- Amount Available for Allocation – 210,000
- Well Depth – 200 Feet
- Yield – 25 GPM



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Questions?

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