

The Arkansas River Shiner

Impacts on Oklahoma Water Management



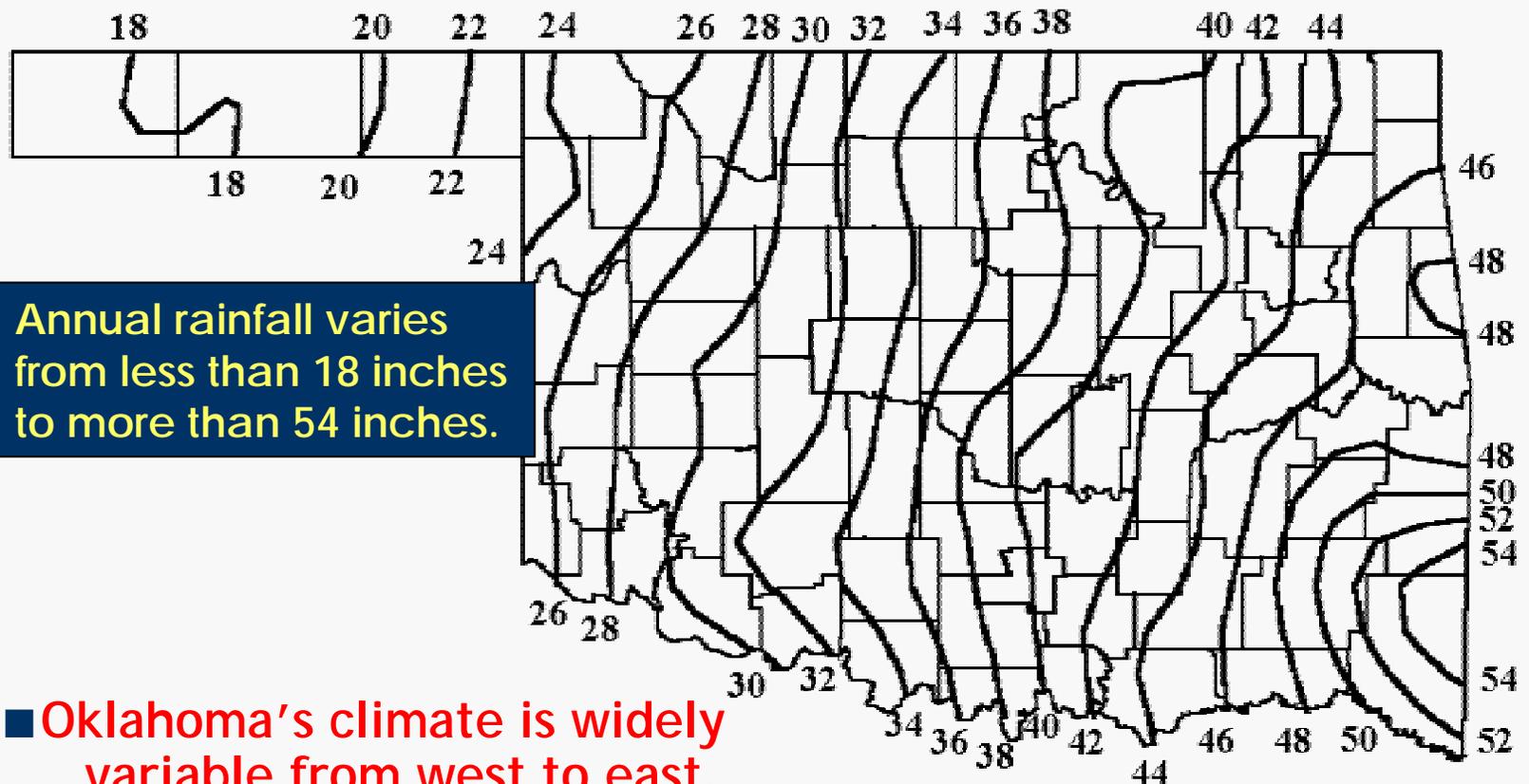
Western States Water Council
ESA Workshop
May 6, 2002



Duane A. Smith, Executive Director
Oklahoma Water Resources Board
Oklahoma's Water Agency

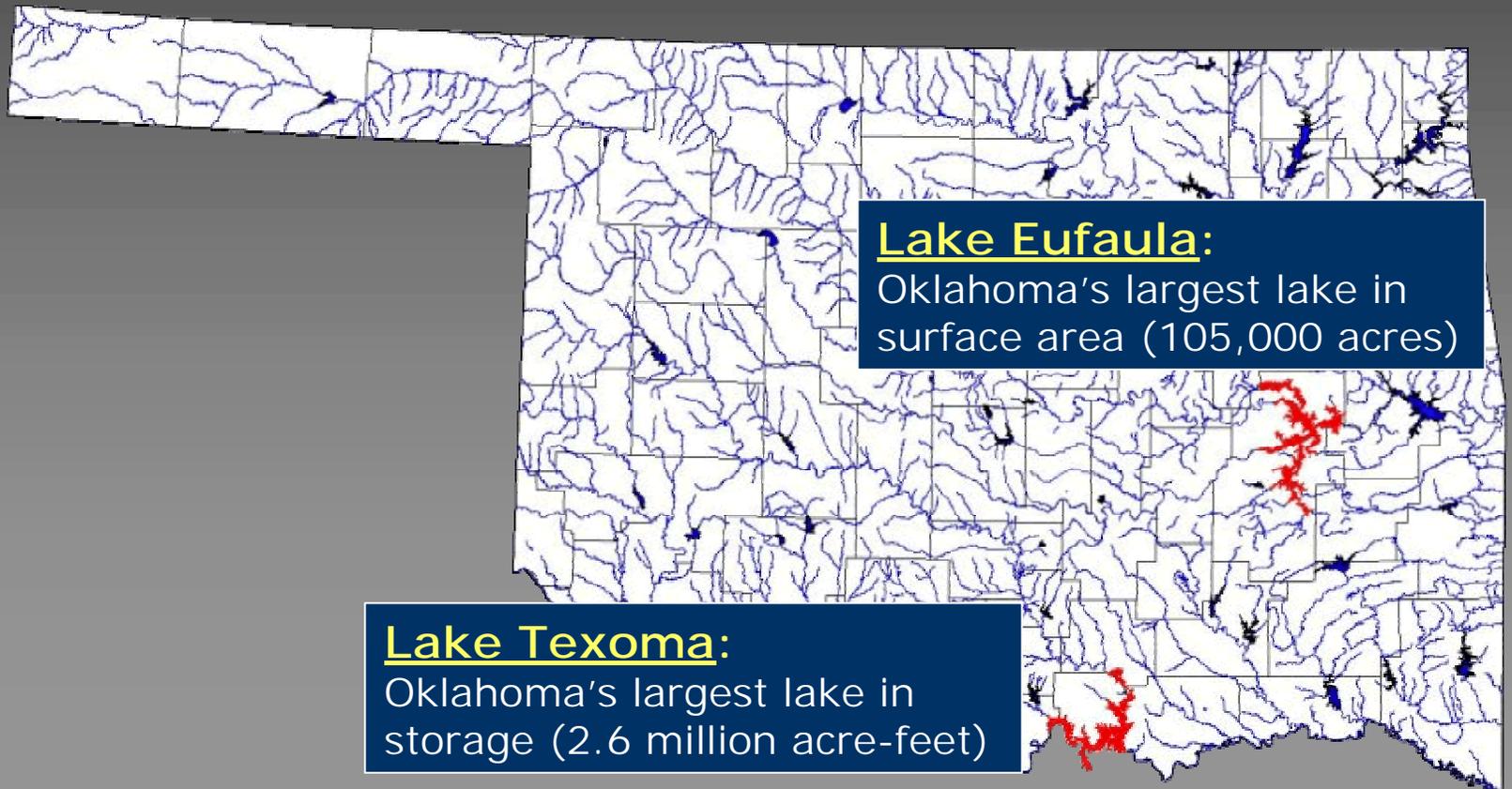
Oklahoma's Water Resources

**Normal Annual Precipitation
Oklahoma (1971-2000)**



Oklahoma's Water Resources

- 34 major reservoirs store 13 million acre-feet of water

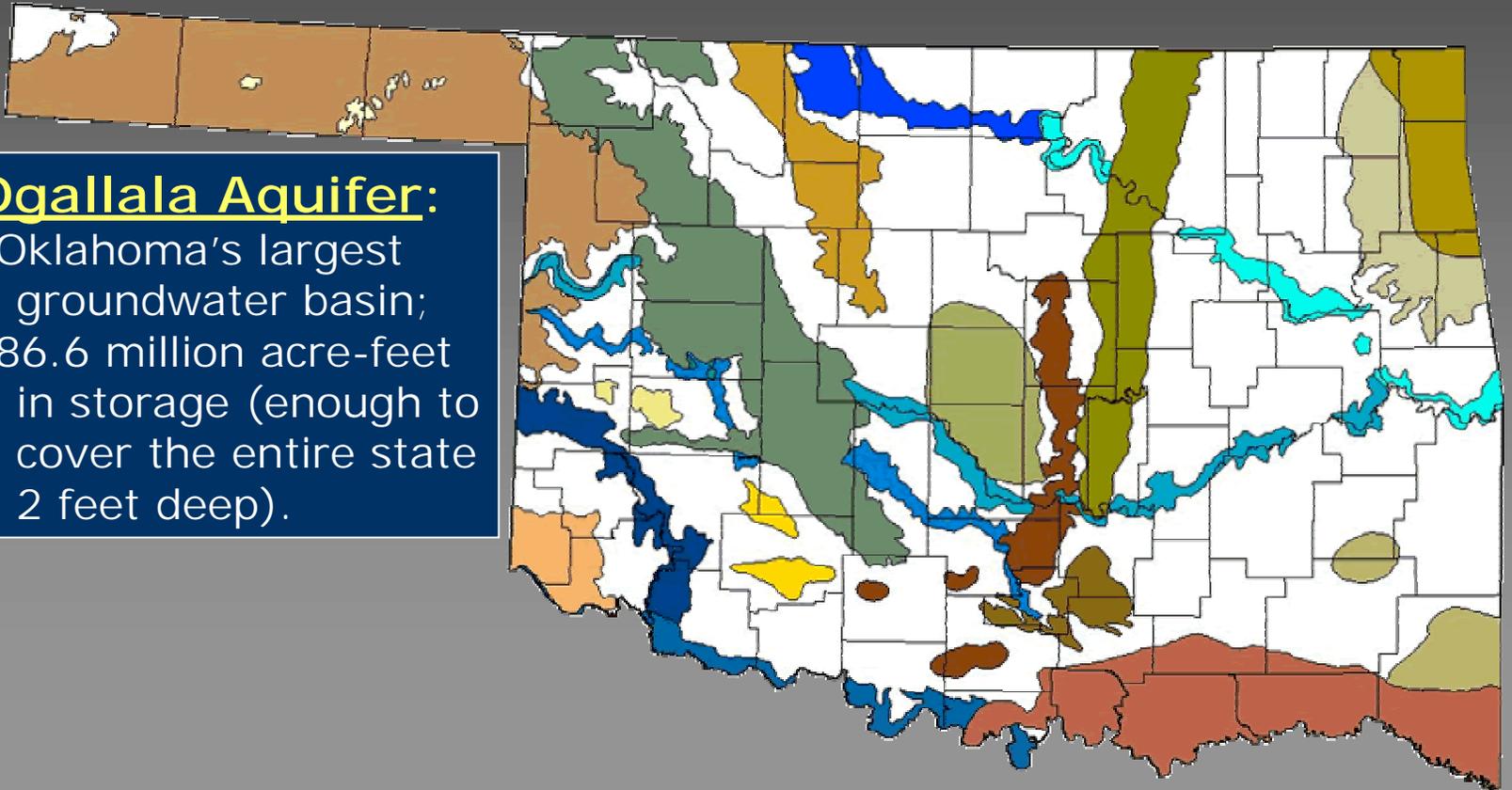


Oklahoma's Water Resources

- 23 major groundwater aquifers store 320 million acre-feet of water

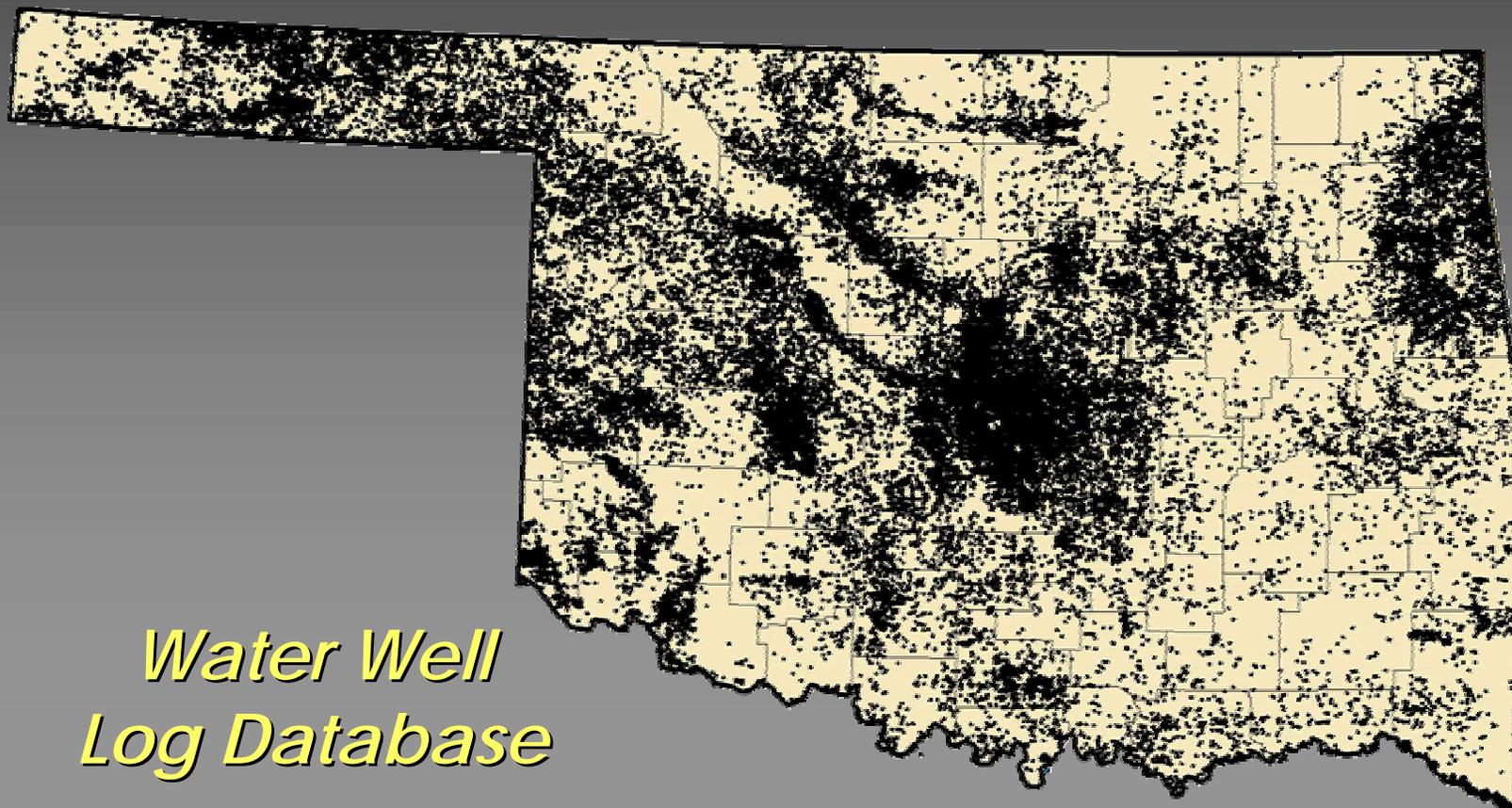
Ogallala Aquifer:

- Oklahoma's largest groundwater basin;
- 86.6 million acre-feet in storage (enough to cover the entire state 2 feet deep).



Oklahoma's Water Resources

- 23 major groundwater aquifers store 320 million acre-feet of water



*Water Well
Log Database*

Oklahoma's Water Resources

- Irrigation is the #1 use of water in Oklahoma:
 - ◆ accounts for 49 percent of total withdrawals:
 - ◆ water supply = 32 percent
 - ◆ stock watering = 8 percent
 - ◆ accounts for 80 percent of groundwater withdrawals.



During a peak irrigation day (assuming 1,000 wells pumping at 1,000 gallons per minute), Texas County uses as much water as New York City during an average day.

Oklahoma's Water Resources

- 2,600 stream water use permits on file (OWRB):
 - ◆ appropriate 2.4 million ac-ft/year
- 9,500 groundwater permits:
 - ◆ allocate 3.2 million ac-ft/year

	<u>Authorized</u>	<u>Annual Use</u>
City of Tulsa	= 324,778 ac-ft/yr	139,000 ac-ft
City of Oklahoma City	= 215,463 ac-ft/yr	136,000 ac-ft

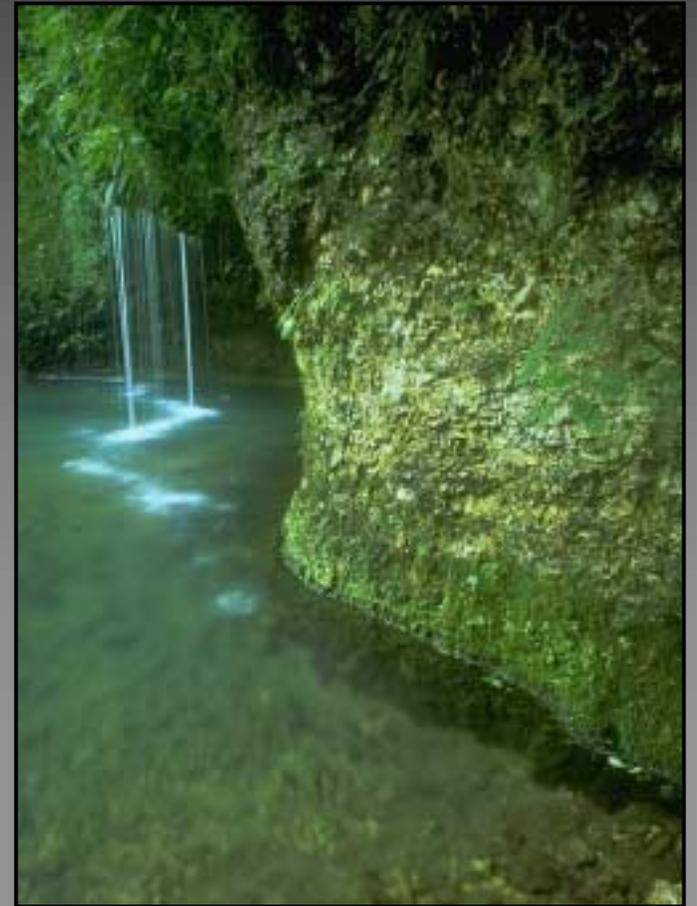
Annual Withdrawals:

Texas/Cimarron/Beaver Counties	= 701,000 ac-ft
State Municipal Water Supply	= 637,000 ac-ft

Overview

Oklahoma Stream Water Law

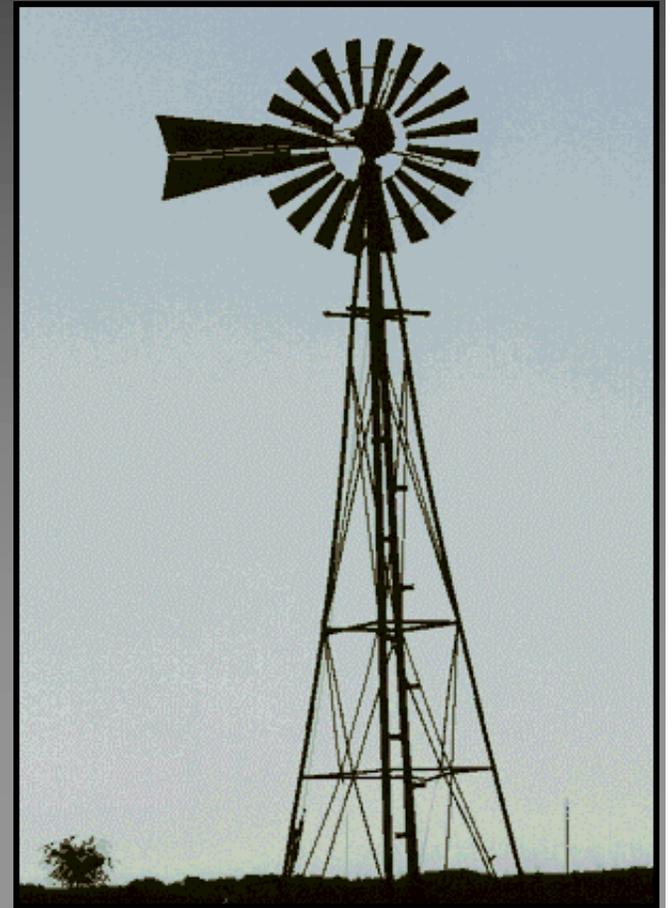
- Stream water is considered to be publicly-owned and subject to appropriation by the OWRB:
 - ◆ “First in time, first in right”: first person to apply for the water right establishes a right superior to later appropriators.



Overview

Oklahoma Groundwater Law

- Groundwater is considered private property that belongs to the overlying surface owner, although it is subject to reasonable regulation by the OWRB:
 - ◆ The amount of groundwater apportioned is based upon the amount of land owned, generally 2 acre-feet of water per acre of land.



The Arkansas River Shiner (*Notropis girardi*)



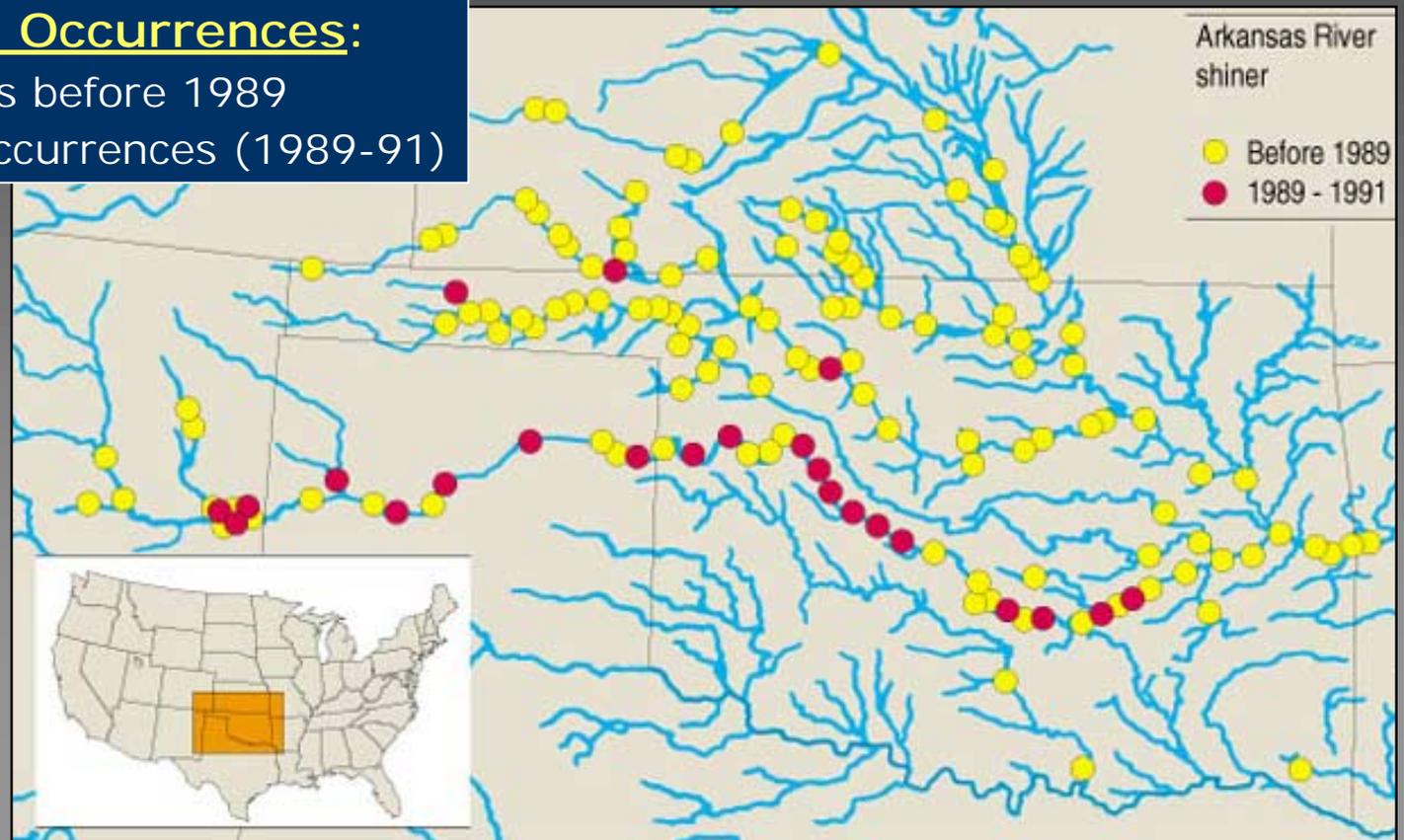
- Small minnow (maximum length = 2 inches).
- Once inhabited wide, sandy-bottomed rivers/streams throughout the Arkansas River Basin (Kansas, New Mexico, Oklahoma, Texas, and Arkansas).
- Requires at least 80 consecutive river miles to complete its life cycle.

The Arkansas River Shiner

- Within the last 20 years, the species has disappeared from over 80% of its historic range.

Historical Occurrences:

- collections before 1989
- current occurrences (1989-91)



The Arkansas River Shiner

■ Timeline:

- ◆ November 1998--U.S. Fish and Wildlife Service lists ARS as “threatened” species.
- ◆ April 2001--USFWS designates critical habitat for ARS:
 - ◆ “specific geographic areas that are essential to the conservation of a threatened or endangered species and that may require special management considerations” .
 - ◆ the designation prohibits federally-sponsored actions on those lands that are likely to adversely modify a listed species' critical habitat.

The Arkansas River Shiner

■ Timeline:

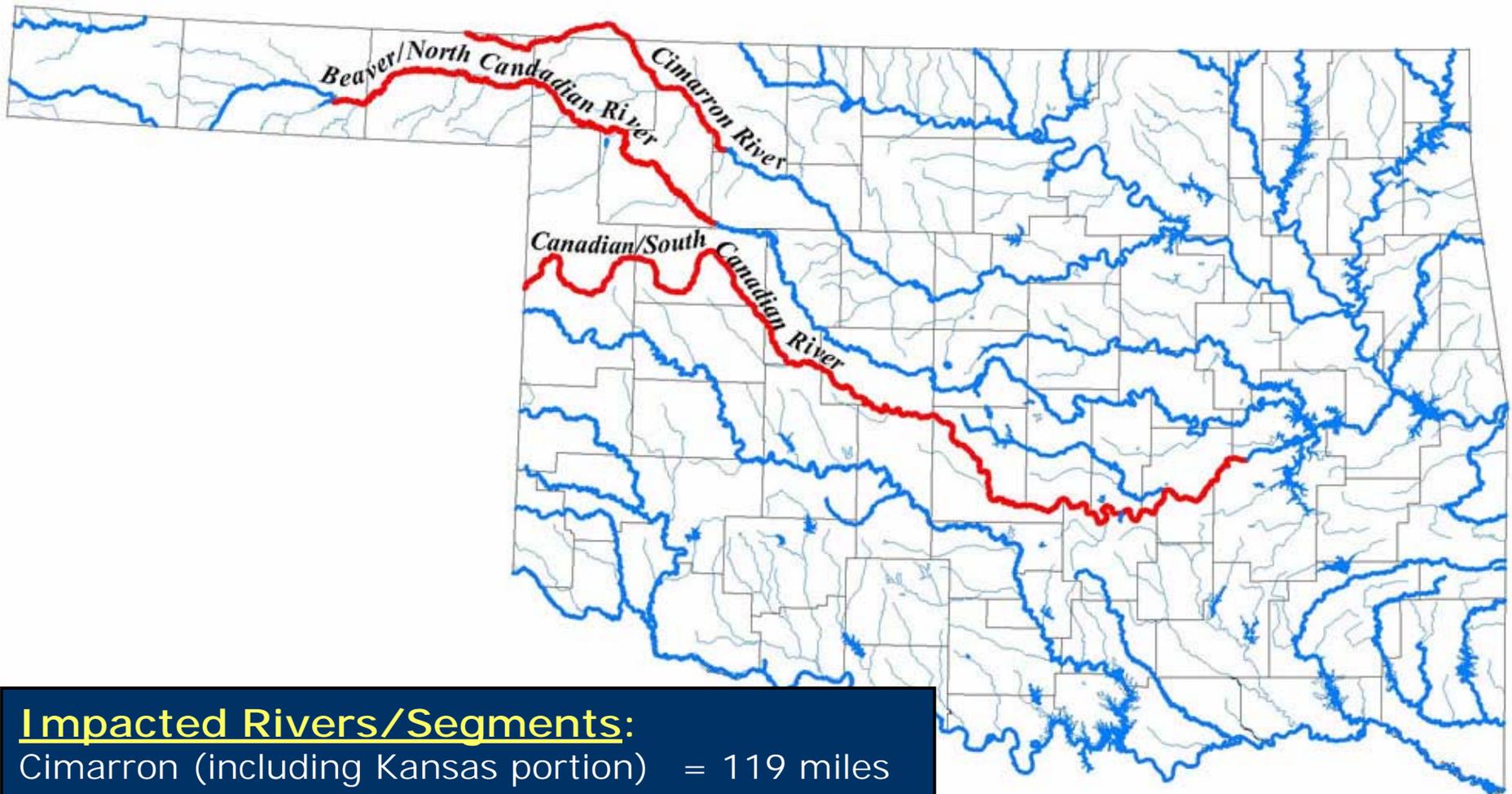
- ◆ April 2002 -- Arkansas River Shiner Coalition (including five Oklahoma farm groups) files lawsuit against USFWS citing endangerment of private property rights.

The Arkansas River Shiner

■ Critical Habitat:

- ◆ 1,148 river miles in four states (New Mexico, Texas, Kansas, and Oklahoma).
- ◆ Includes 300 feet of “riparian corridor” on either side of designated rivers/streams.
- ◆ In Oklahoma:
 - ◆ 721 total miles, most of which includes currently “unoccupied” miles (where species no longer found);
 - ◆ impacts 22 of state’s 77 counties;
 - ◆ 98 percent of critical habitat area held in private ownership.

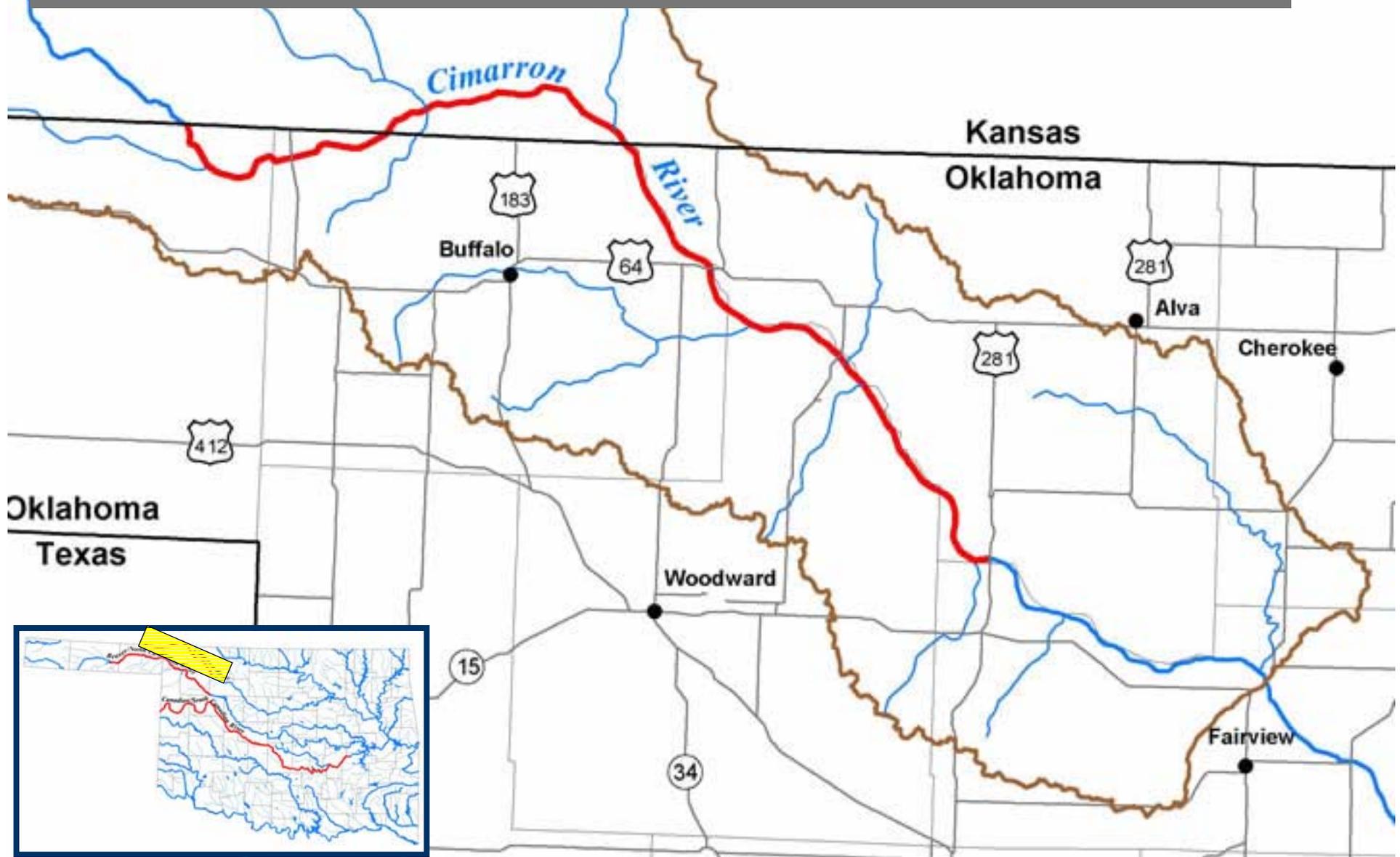
Arkansas River Shiner Critical Habitat in Oklahoma Impacted Rivers



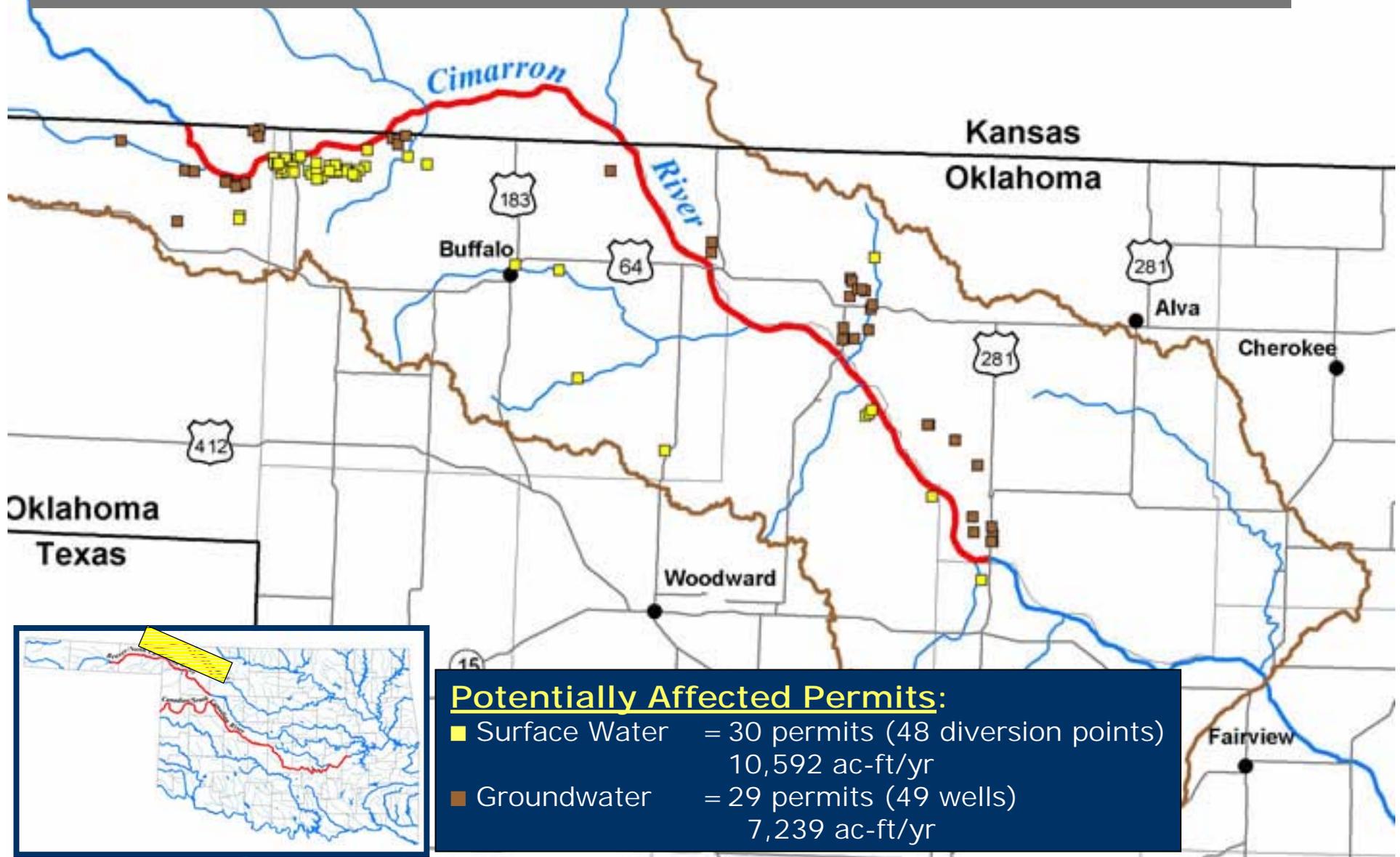
Impacted Rivers/Segments:

Cimarron (including Kansas portion)	= 119 miles
Beaver/North Canadian	= 210 miles
Canadian/South Canadian	= 392 miles
Total	= 721 miles

Arkansas River Shiner Critical Habitat in Oklahoma Cimarron River



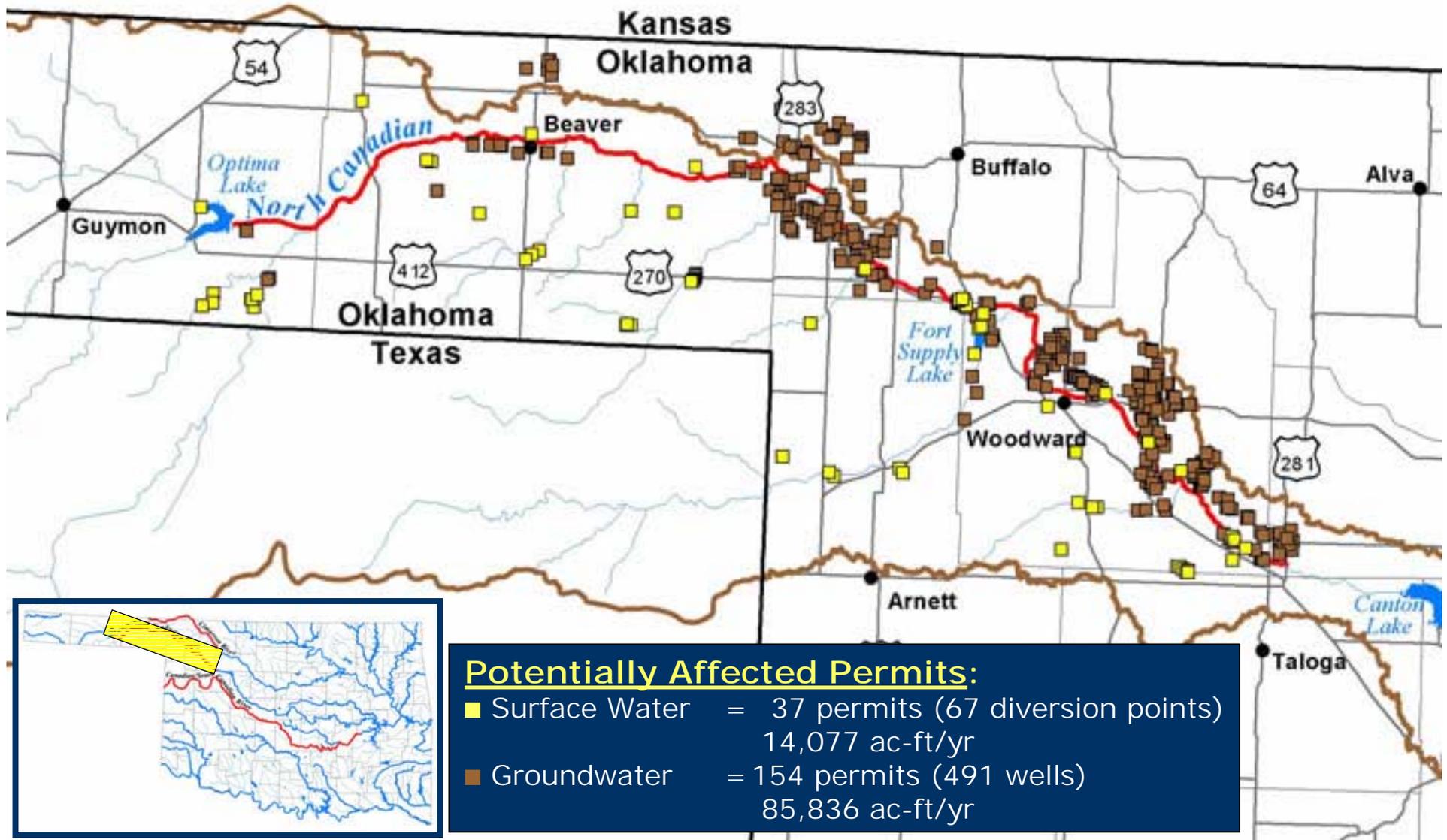
Arkansas River Shiner Critical Habitat in Oklahoma Cimarron River



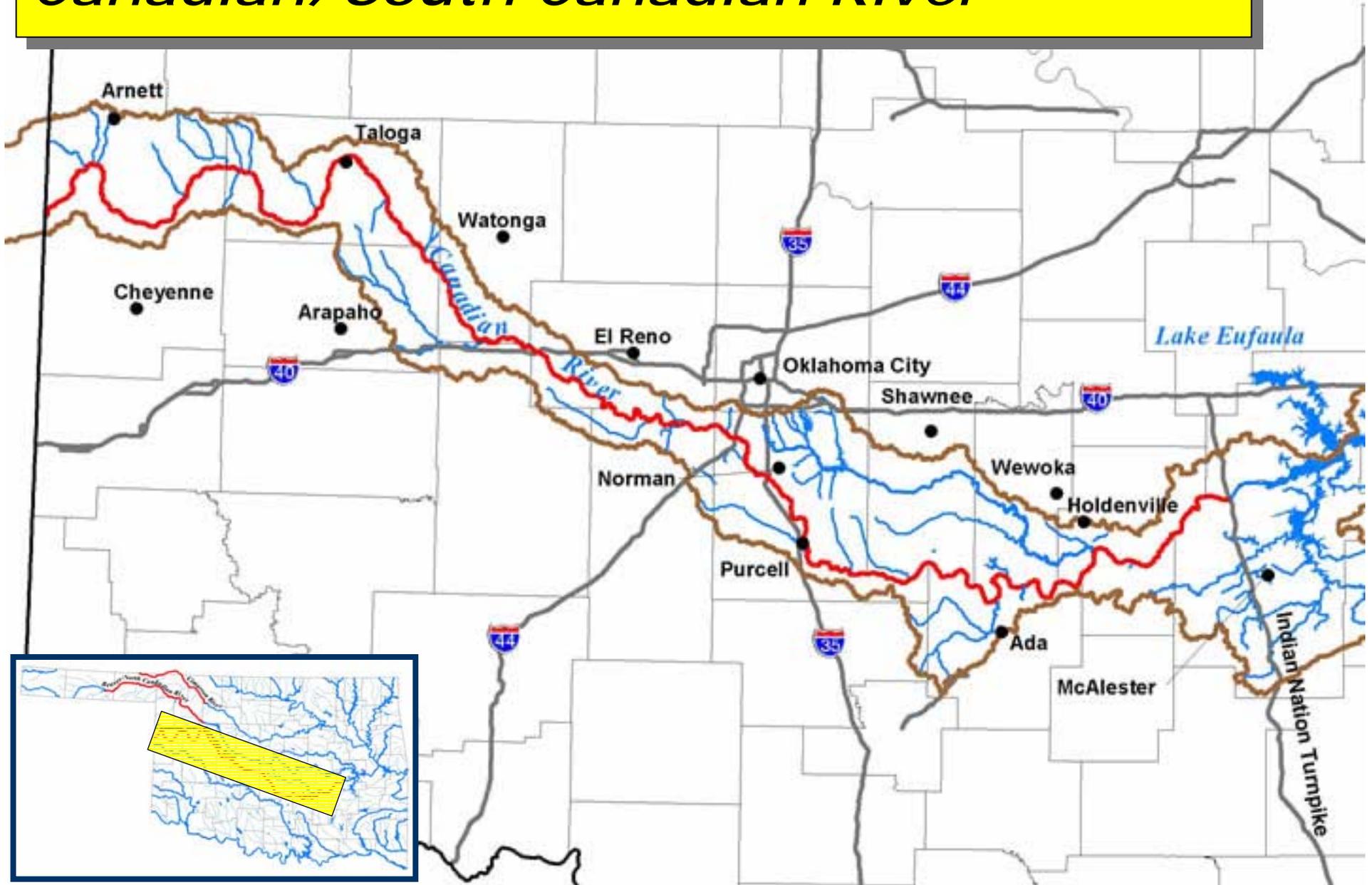
Arkansas River Shiner Critical Habitat in Oklahoma Beaver/North Canadian River



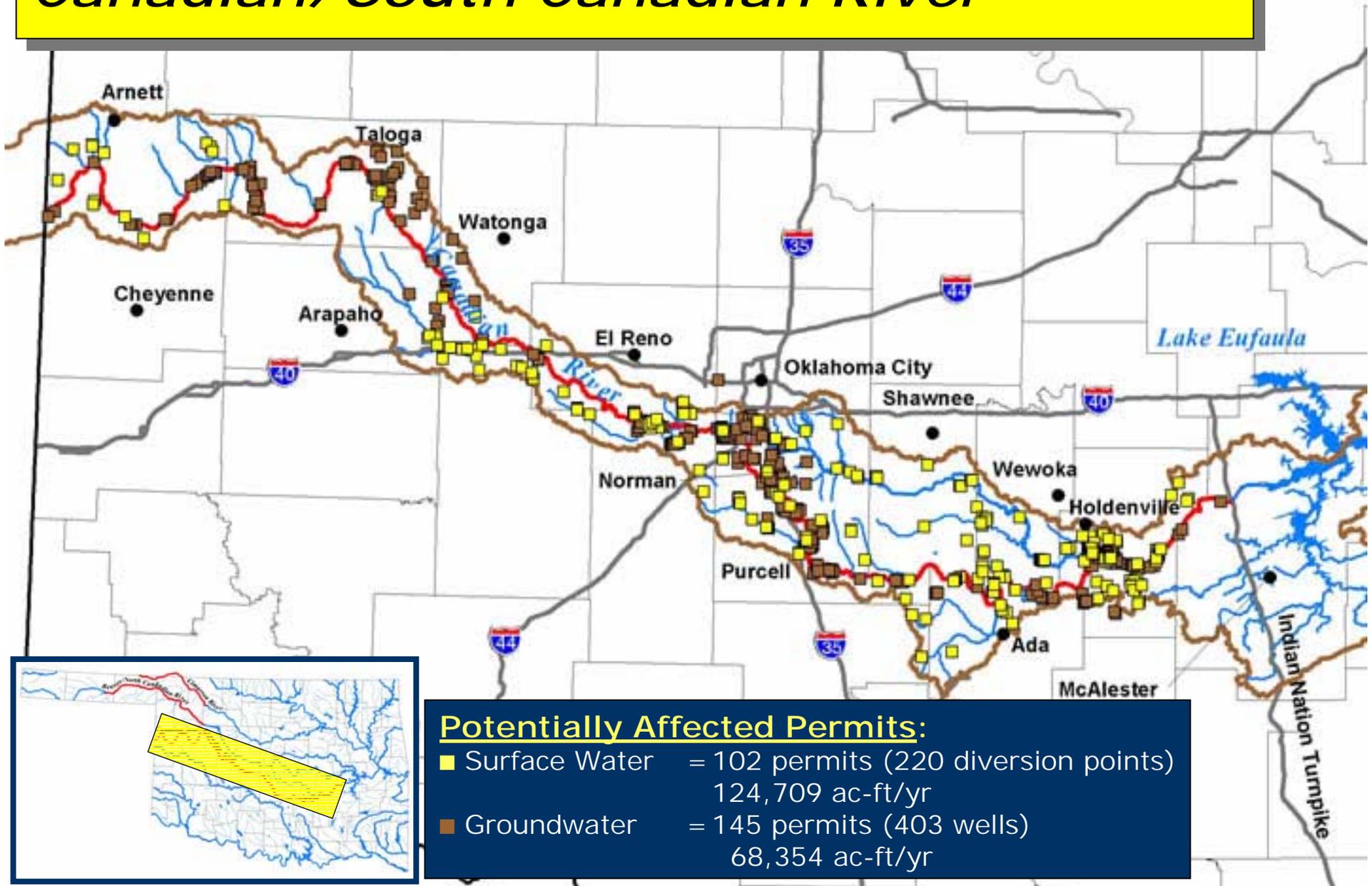
Arkansas River Shiner Critical Habitat in Oklahoma Beaver/North Canadian River



Arkansas River Shiner Critical Habitat in Oklahoma Canadian/South Canadian River



Arkansas River Shiner Critical Habitat in Oklahoma Canadian/South Canadian River



The Critical Habitat Designation Impacts on Water Management

■ Private property rights:

- ◆ use of groundwater;
- ◆ use of stream water - domestic riparian and vested appropriation.

➔ *How will the use of water disturb or negatively impact the shiner's habitat?*

The Critical Habitat Designation Impacts on Water Management

■ Problems:

- ◆ Water in alluvium outside cut banks is privately owned groundwater; use of alluvium groundwater can affect stream flow.
- ◆ Actions in 300-foot riparian corridor includes use of groundwater from alluvium water wells and use of appropriation rights to divert stream water.
- ◆ “Takings” issues--groundwater and stream water appropriations.

The Critical Habitat Designation Impacts on Water Management

■ Problems:

- ◆ Takings issues--potential restrictions on groundwater use and stream water appropriations.
- ◆ Establishment of criteria to determine actions likely to modify critical habitat.
- ◆ Impacts of alluvial groundwater use versus stream water use.
- ◆ CRP payments and federal funding to municipalities relying on groundwater.

Summary

- Balance state water use with requirements for species protection.
- Critical habitat designations should involve comprehensive economic analyses of potential impacts on water management.



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