Chapter 1

In this chapter:

- *Oklahoma's location contributes to both the economy and our culture.*
- *We have a diverse topography, including mountains, hills, plains, and plateaus.*
- *Natural resources also play an important role in the economy.*
- *Although the climate is temperate, or mild, the state's weather is often unpredictable and can turn violent within a few hours.*

Section 1: The Crossroads of America

Oklahoma's Vital Statistics

- Land area: 69,903 square miles (20th of 50)
- Estimated 2019 population: 3,957,000 (28th of 50)
- Admitted to the Union on November 16, 1907: the 46th State

Historic latitudes and longitudes

- ***Oklahoma is located between 33° 39′ and 37° North latitude.***
- ***In 1820, the Missouri Compromise decided that Indian Territory would allow slavery. The Panhandle's southern border (36° 30′) stood as the dividing line.***
- ***Oklahoma is located between 94° 29′ and 103° West longitude.***
- ***The 98th Meridian was believed to be the gateway to "The Great American Desert." People thought farming was impossible west of this line due to the lack of rainfall.***

Three major interstate highways
- I-35, I-40, and I-44 -
make Oklahoma's location ideal for
the national distribution of products.

Oklahoma is sometimes called "The Crossroads of America."

The Panhandle is a strip of land that extends from the main body of the state.

The three westernmost counties - Cimarron (west), Texas (center), and Beaver (east) - give our state its distinctive shape.

Six states border Oklahoma:
the mountain states of Colorado and New Mexico;
the plains states of Kansas and Texas;
and the plateau states of Missouri and Arkansas.

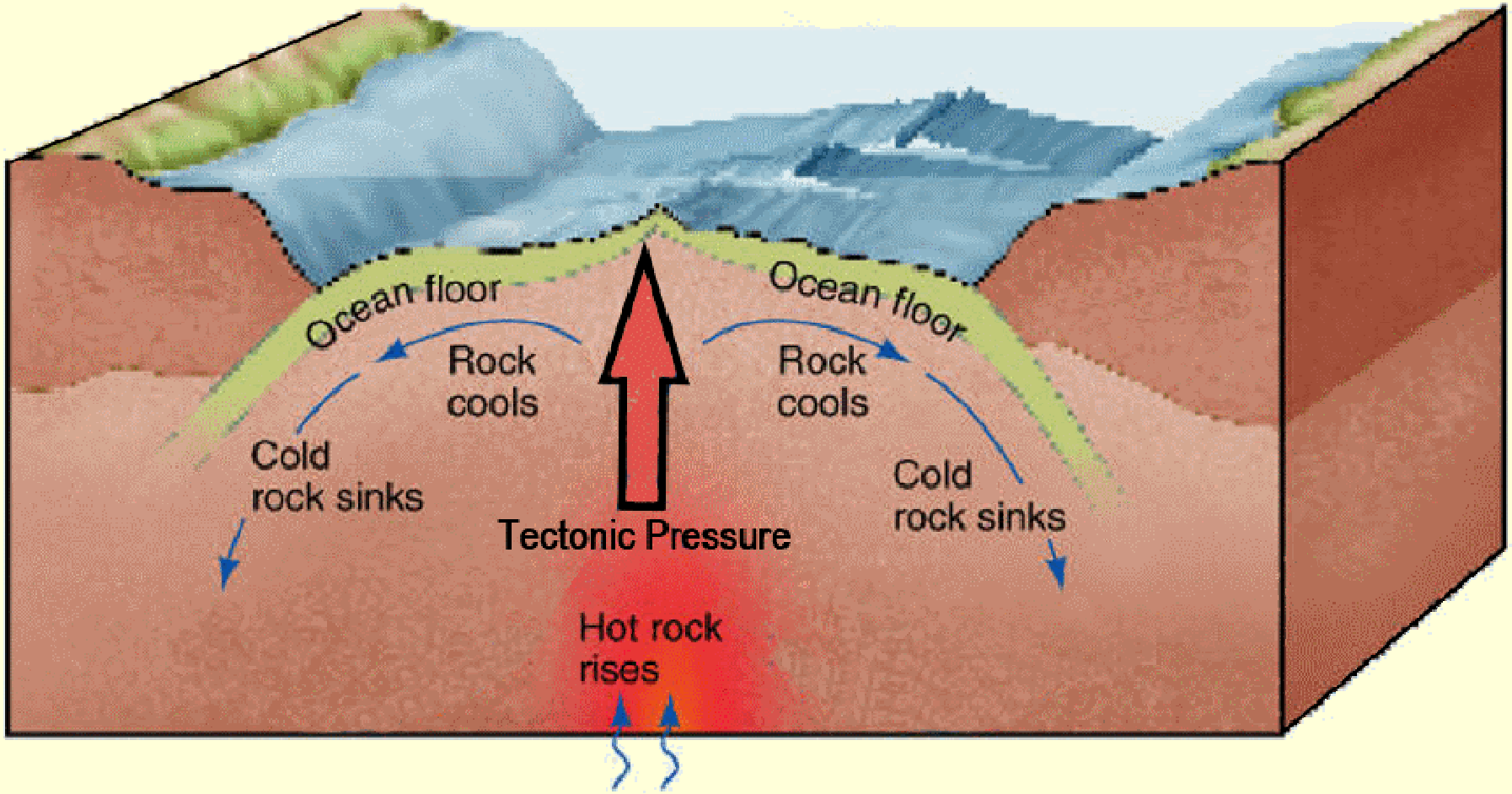
Most of Oklahoma is part of The Great Plains, grasslands extending southward from Canada through the central part of the United States.

Oklahoma's location is ideal for farming and cattle-raising.

But Oklahoma was once covered by a shallow sea.

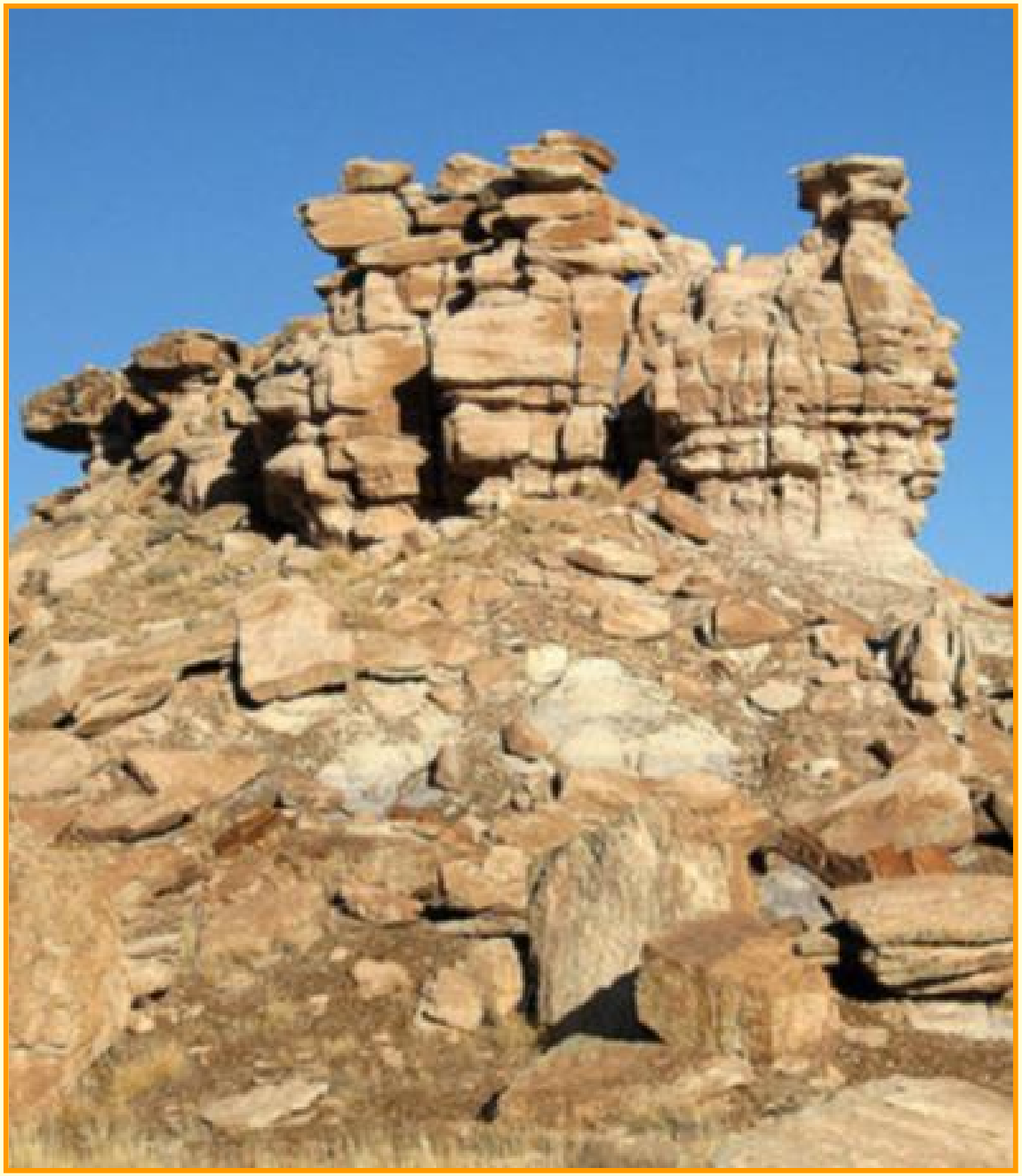
Tectonic pressure buckled the Earth's surface, creating mountain ranges that rose above the water.

The ocean floor was pushed upward and dry land emerged from the sea.

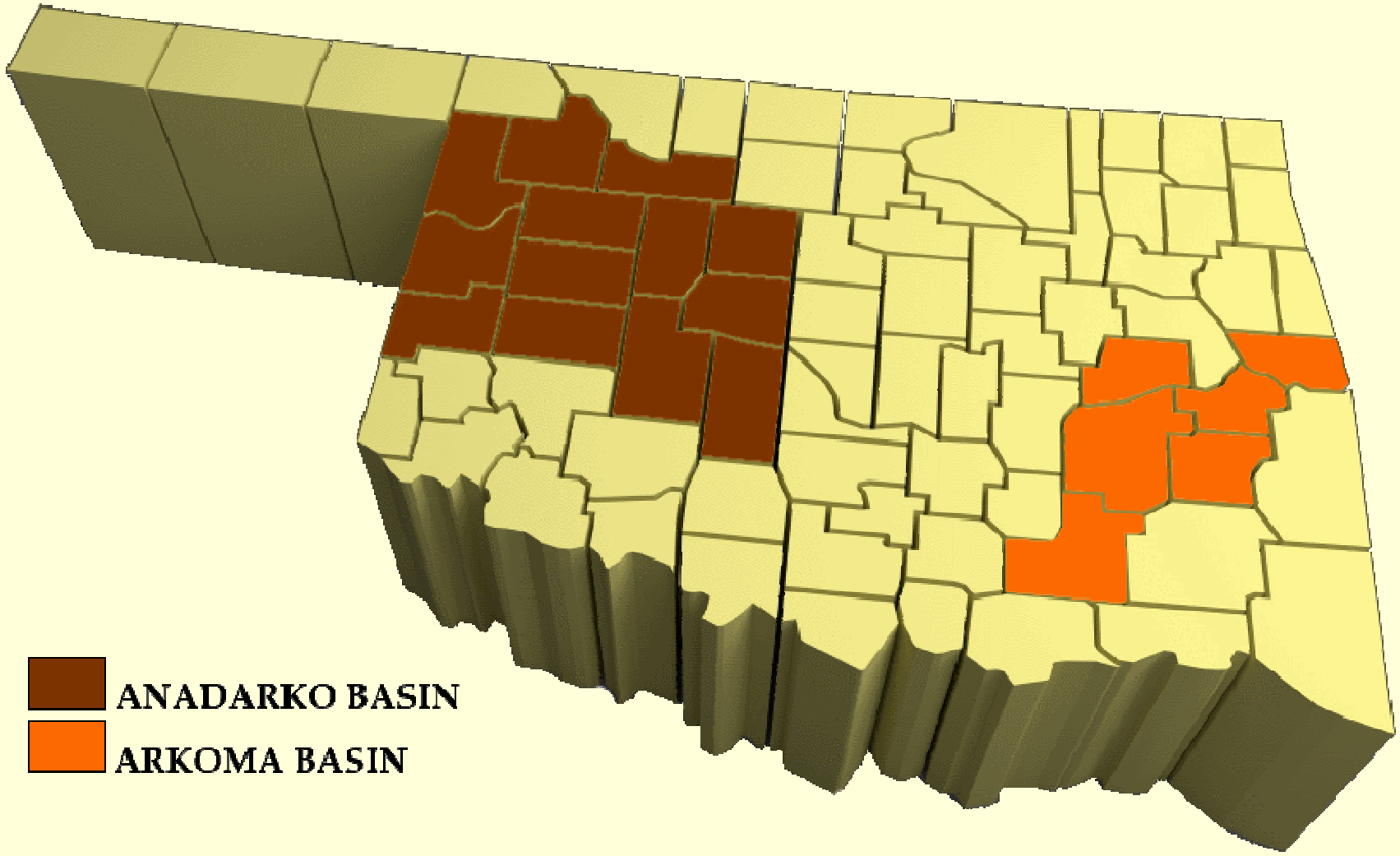


The mountainous regions of Oklahoma were whittled down over time by erosion.

Erosion is the wearing away of land by wind, rain, and ice.

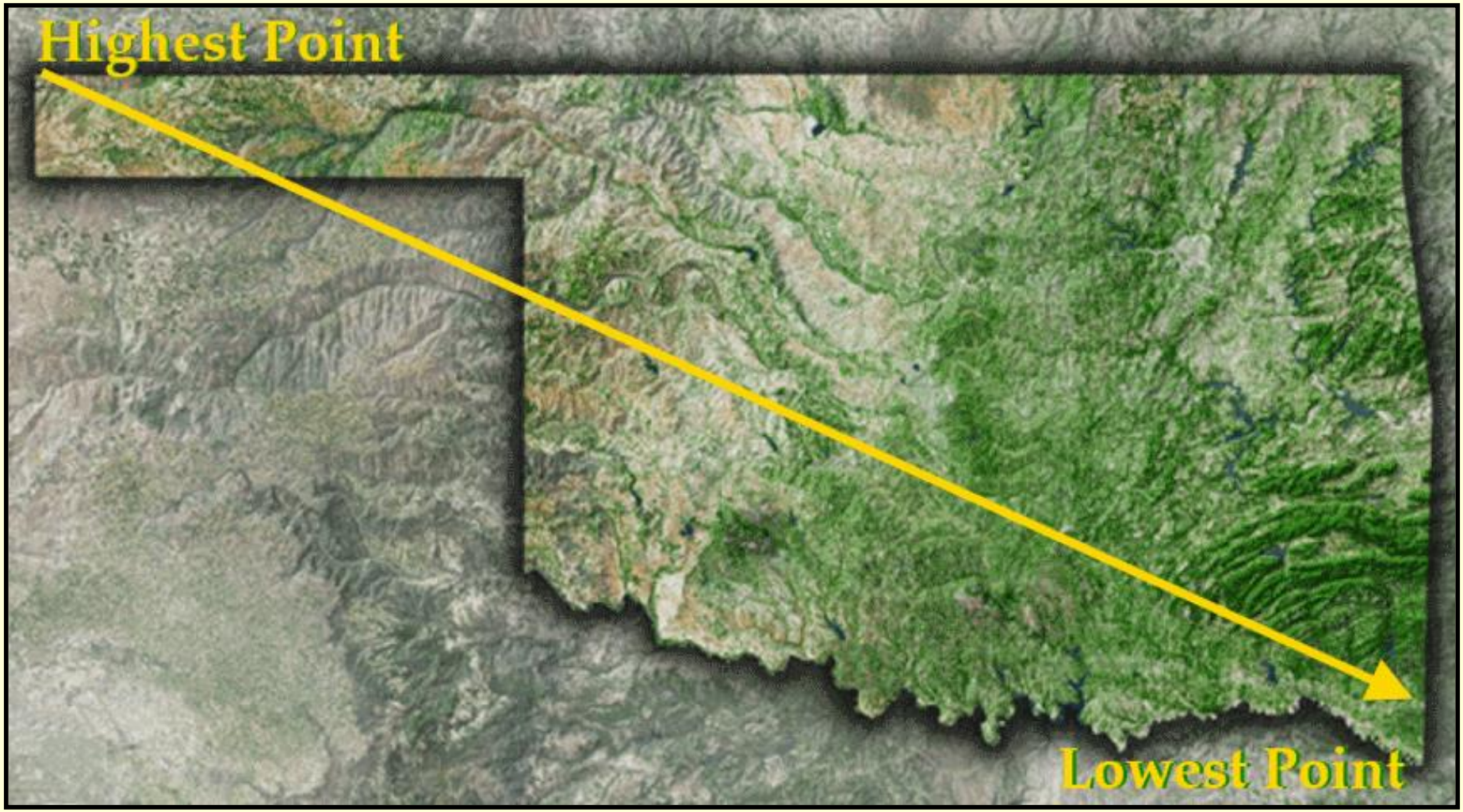


When the prehistoric sea evaporated, the Anadarko and Arkoma basins were formed. A basin is a wide, flat area that is lower than the surrounding land.



Today, the basins contain valuable oil, natural gas, and mineral deposits.

Elevation (or the distance of a place above sea level) declines from northwest to southeast in Oklahoma.



Black Mesa is the highest point in Oklahoma.

Located in Cimarron County, it is 4,973 feet above sea level.

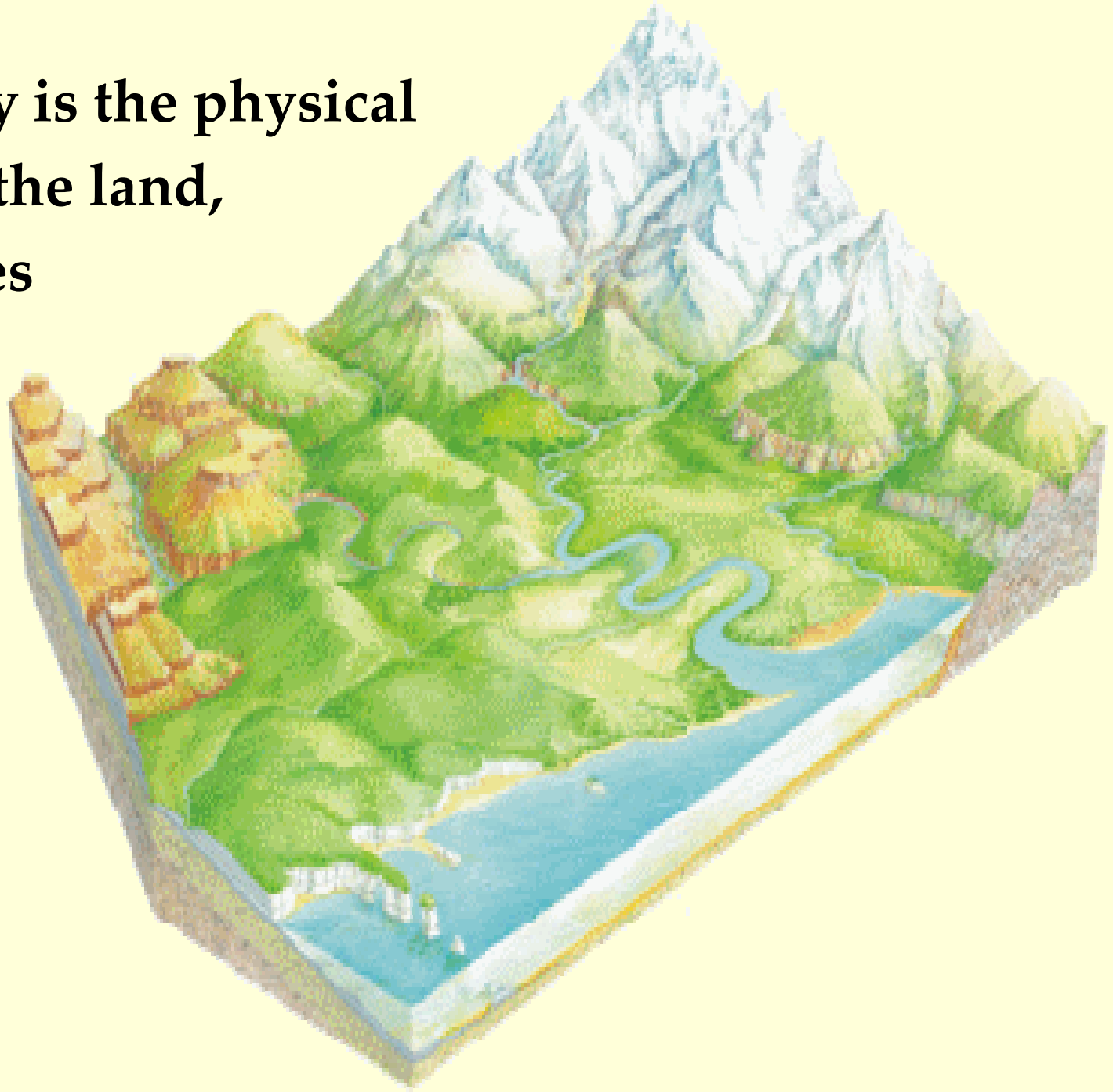
The Little River floodplain is the lowest point in Oklahoma.

Located in McCurtain County, its is only 287 feet above sea level.

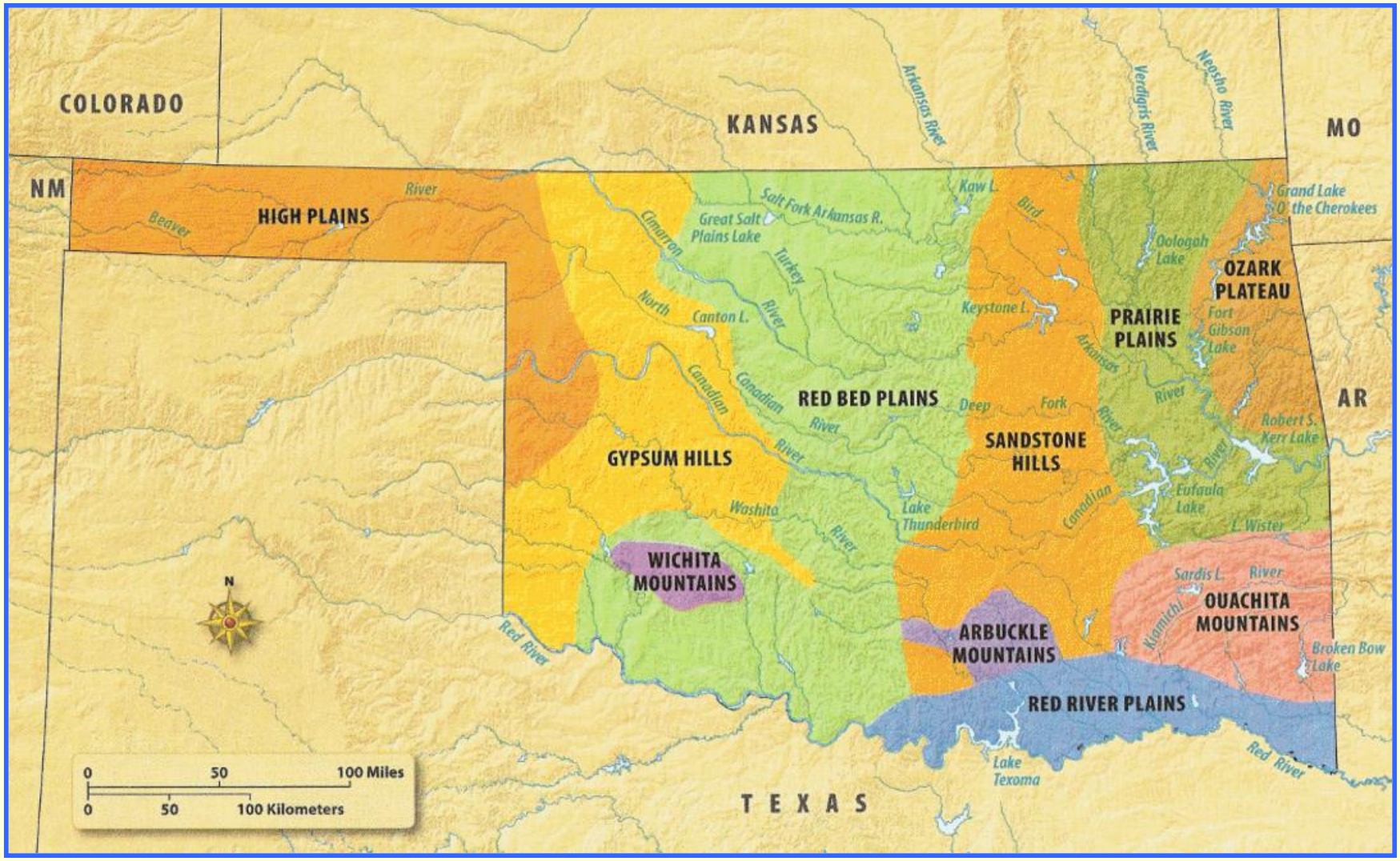
Although Oklahoma is part of the Great Plains, its topography varies greatly, with 10 distinct regions.

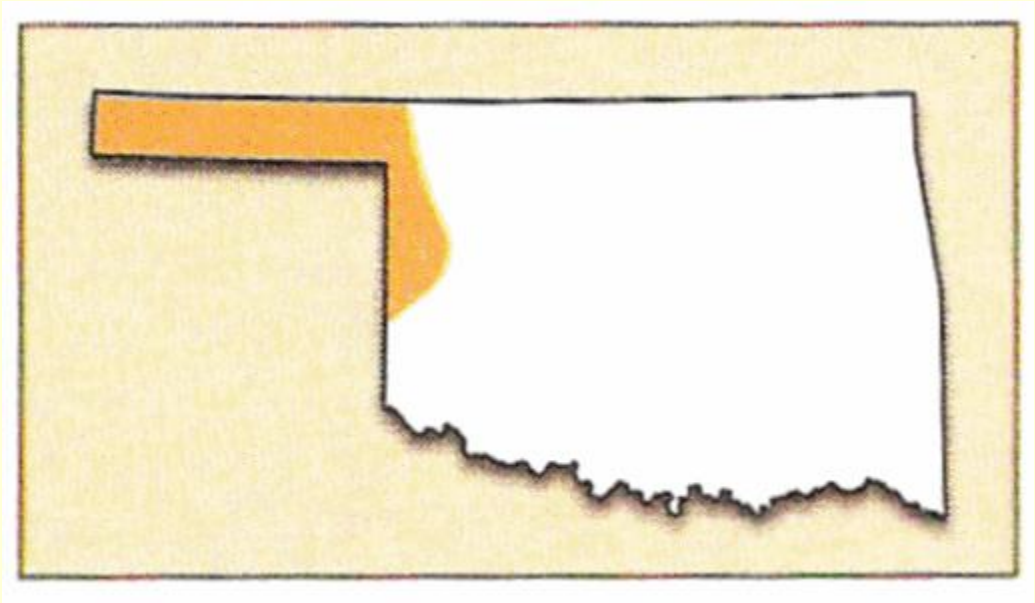
Mt. Scott, for example, rises abruptly out of the southern plains.

Topography is the physical features of the land, and includes mountains, plateaus, mesas, buttes, hills, valleys, canyons, and plains.



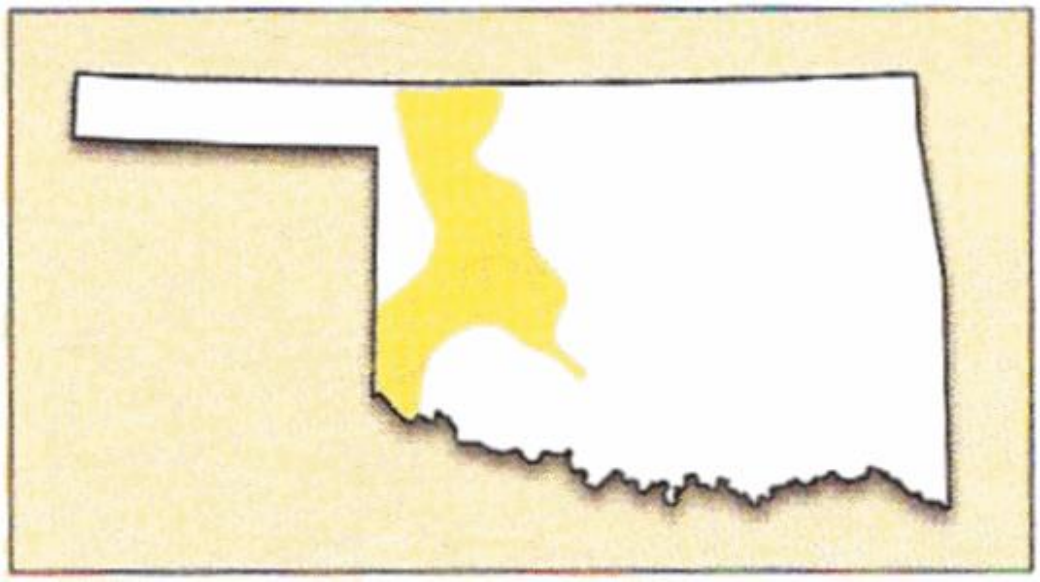
Section 2: Geographic Regions





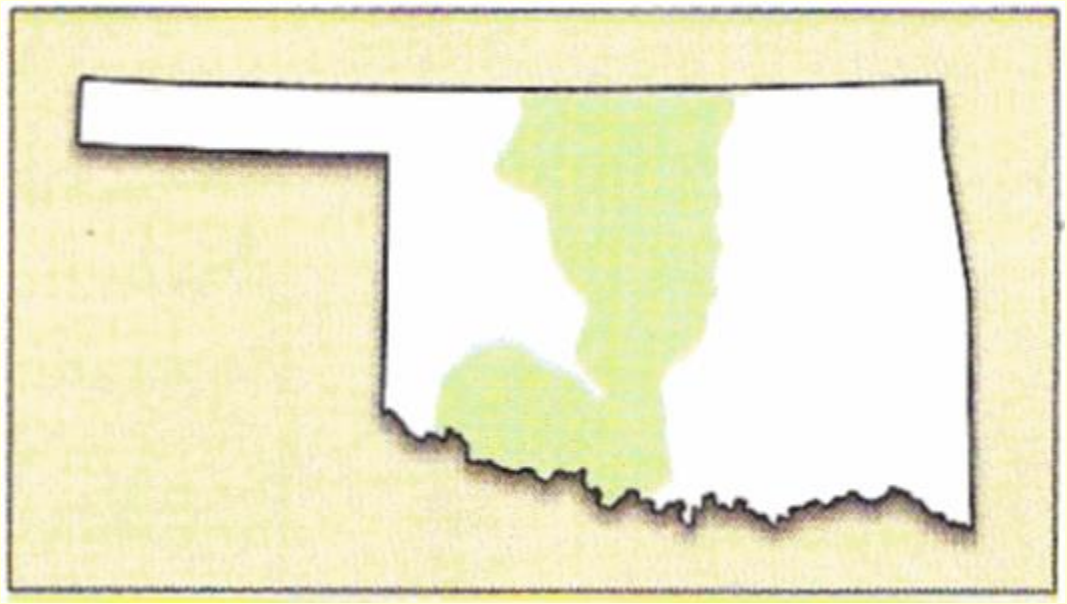
The High Plains include the Panhandle and the northwest border of the state.

They were formed by lava from a prehistoric volcano in southeast Colorado.
Black Mesa is located here. A mesa is a flat-topped, steep-sided landform.
The High Plains have an abundance of wildlife and fossils
and are a favorite of stargazers because of their minimal "light pollution."



The Gypsum Hills cover the northwest region of the state from Kansas to the Texas Panhandle.

The gypsum deposits were left when the ancient sea evaporated.
A series of buttes called the Glass Mountains are located here.
A butte is an isolated, steep-sided hill that is smaller than a mesa.
The Glass Mountains get their name because the gypsum reflects sunlight.



The Red Bed Plains cover the west central region of the state from Kansas to Texas.

They take their name from the red clay soil.
The area is noted for its agriculture, including
wheat, hay, alfalfa, cotton, and grasslands for cattle.
The capital, Oklahoma City, is located here.

The Wichita Mountains are in the southwest corner of the state.

These landforms are among the oldest on Earth.
The region includes a wildlife refuge featuring herds of buffalo.
Fort Sill was established here 20 years before the Land Run.
Quartz Mountain State Park is located here.

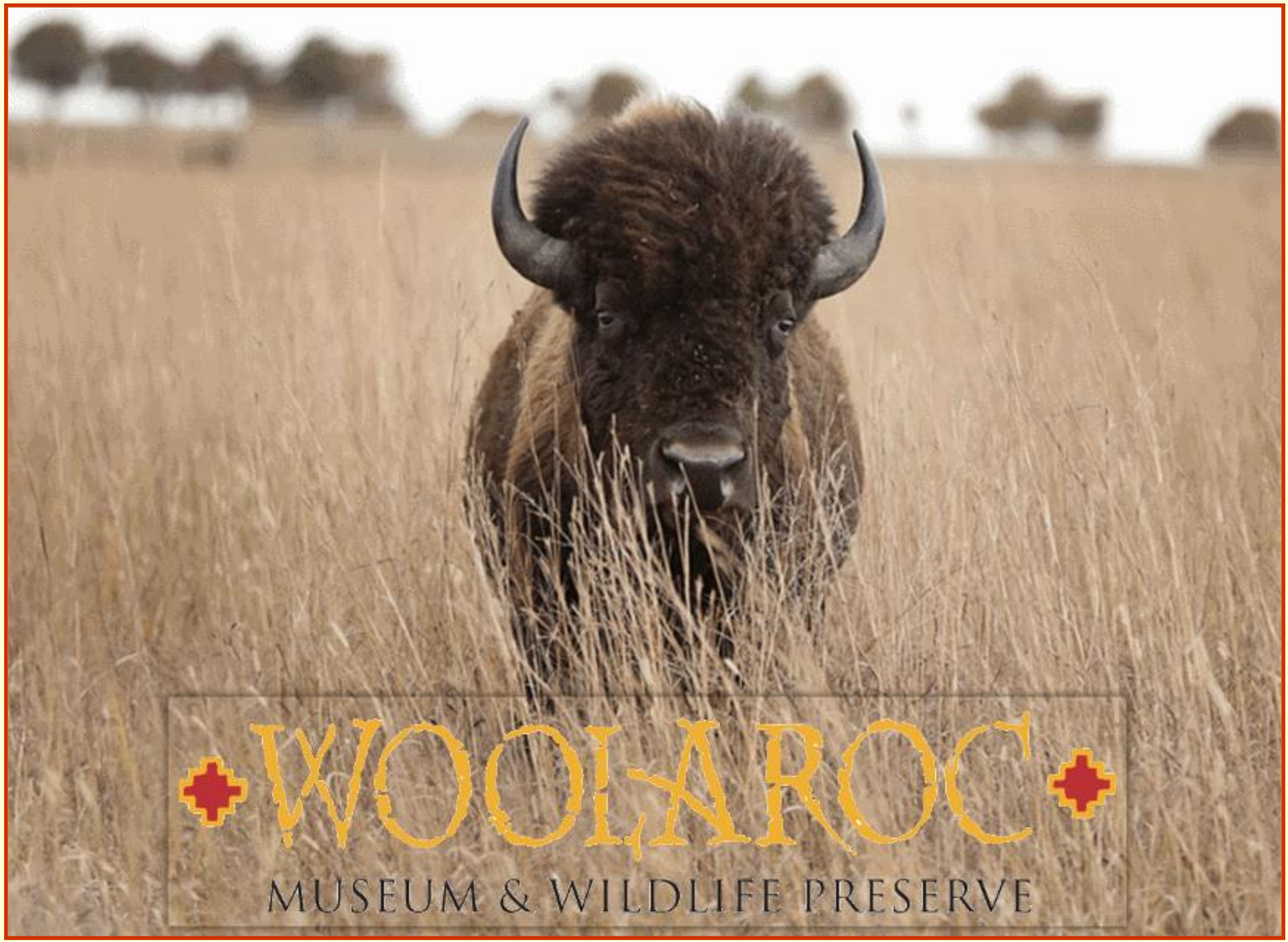
The Sandstone Hills are in the east central region of the state.

The hills are heavily eroded and only rise to heights of about 400 feet.

The Tallgrass Prairie Preserve is the last remnant of a major ecosystem.

Buffalo graze at Woolaroc, a wildlife preserve and museum.

Travel on the Turner Turnpike can resemble a roller coaster ride.

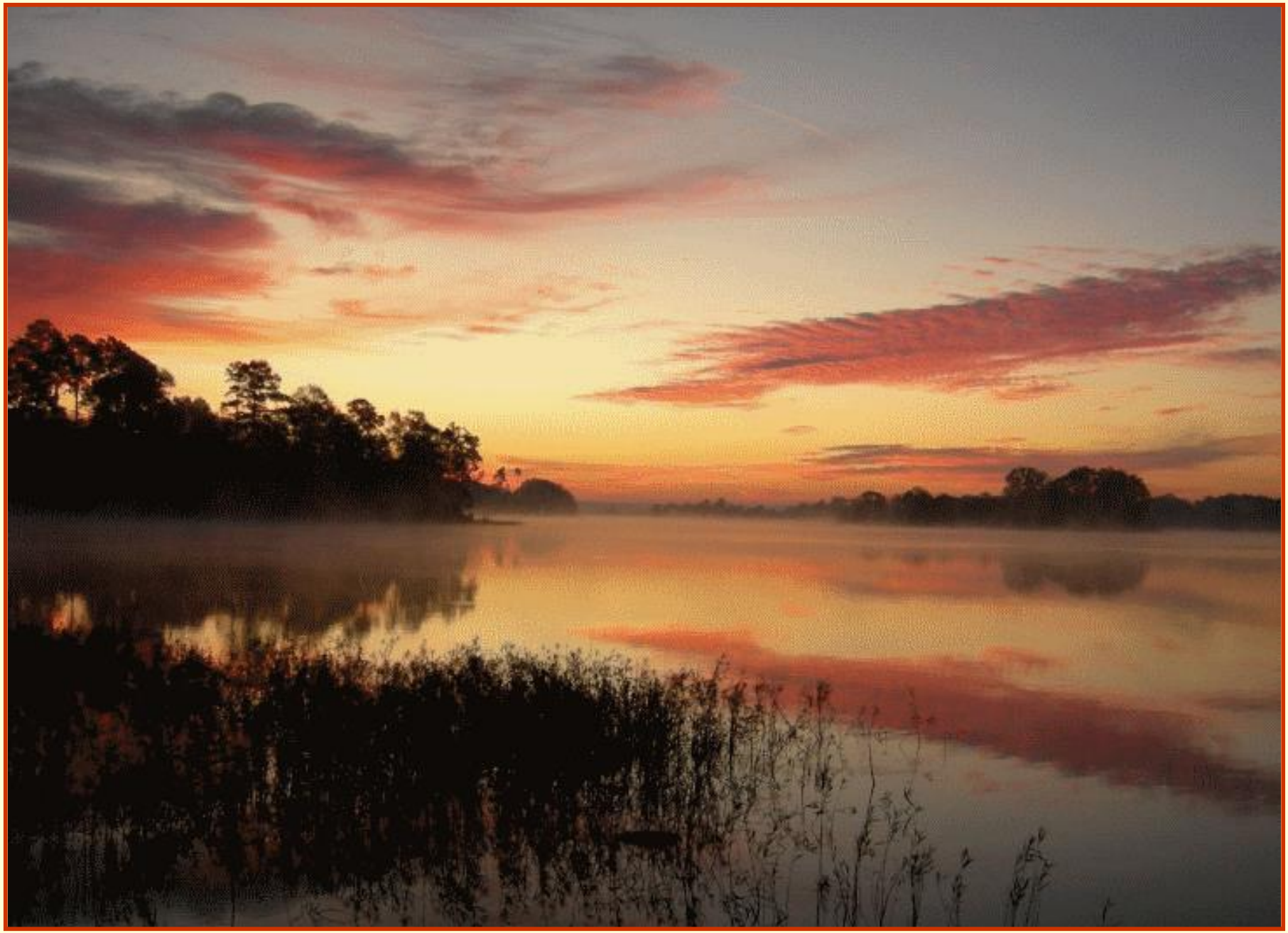

WOOLAROC
MUSEUM & WILDLIFE PRESERVE

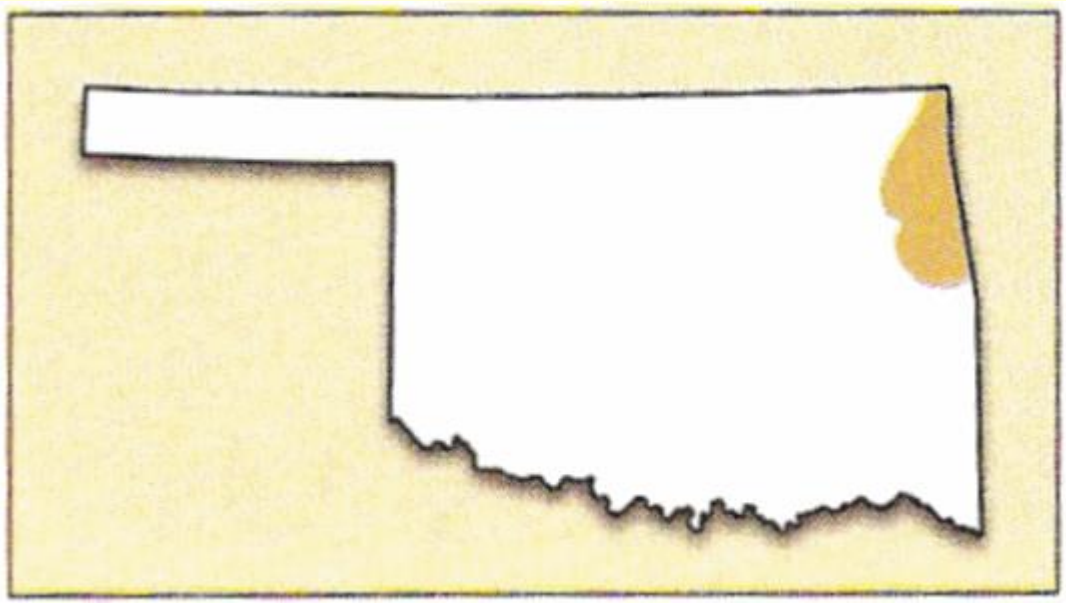
The Arbuckle Mountains are in the south central region of the state, near the Texas border.

This region has the most diverse mineral resources in the state, including limestone, granite, iron ore, and zinc. Its best-known tourist attraction is Turner Falls Park, featuring two swimming areas and a 77-foot waterfall.

The Prairie Plains are an L-shaped area in the northeast region of the state.

Tulsa, the state's second-largest city, is located in the Prairie Plains. Due to the rich soil here, the region is an agricultural showplace. Eufaula, Oklahoma's largest lake, is located here, and the McClellan-Kerr/Arkansas River Navigation System takes ships to New Orleans.



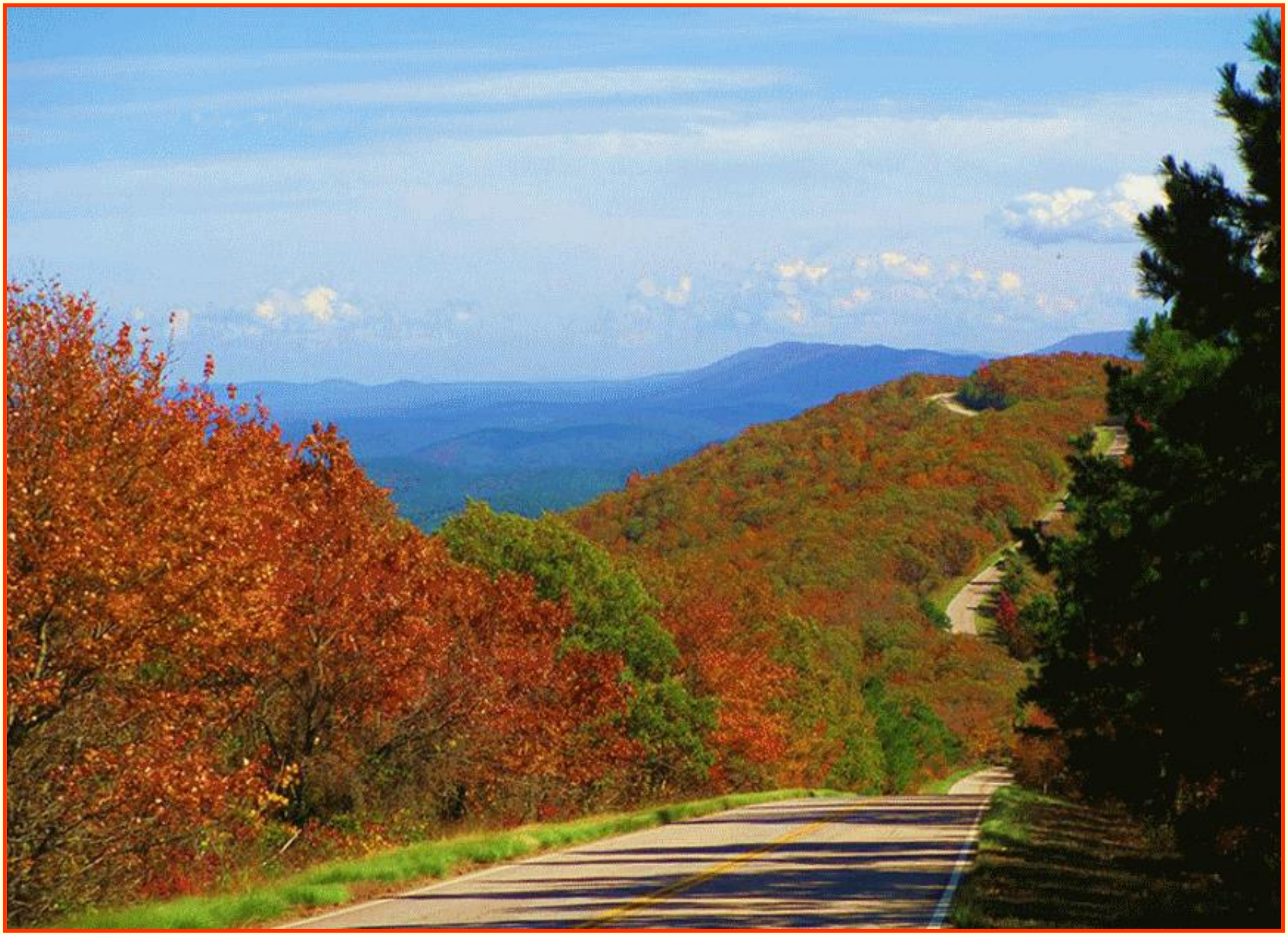


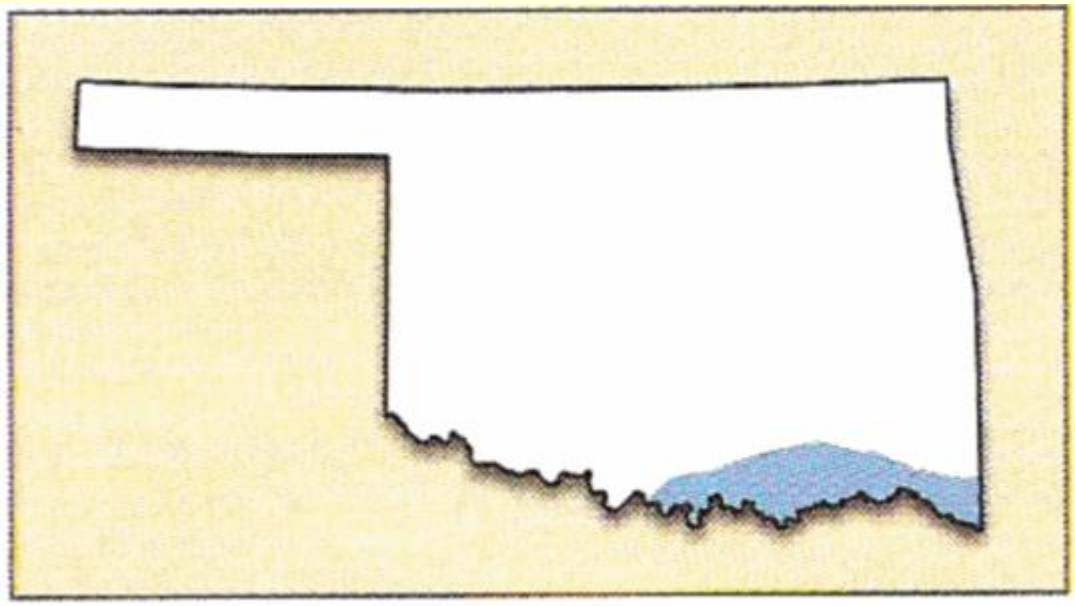
The Ozark Plateau is on the northeast border and is linked to mountains in Missouri and Arkansas.

A plateau is a large, elevated, level area of land.
This region is heavily forested with oak, hickory, and elm trees.
The Pensacola Dam was used to create Grand Lake O' The Cherokees,
and the Illinois River is popular for float trips.

The Ouachita Mountains are on the southeast border with Arkansas.

This region is some of the roughest land in the state. The timber-covered terrain and caves provided safety for Native American peoples, and later, hideouts for outlaws. Talimena Drive is especially known for its fall foliage.





The Red River Plains run from south central to southeast Oklahoma along the Texas border.

Being closest to the Equator, they have the state's longest growing season because the climate stays warm later into Autumn.

The soil here was also ideal for Native Americans to raise squash, corn, beans, melons, and pumpkins.

Section 3: Natural Resources

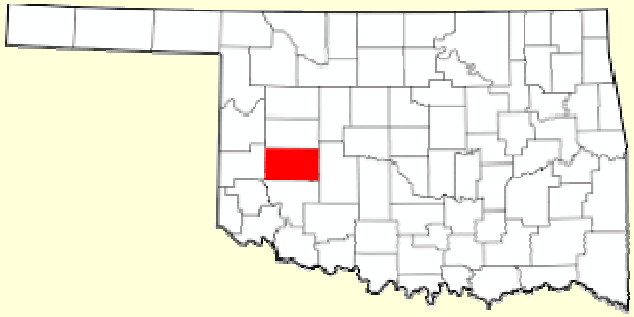
Natural resources are materials found in the environment that are useful to humans: soil, vegetation, minerals, and water.

Soil is one of the state's most important resources.

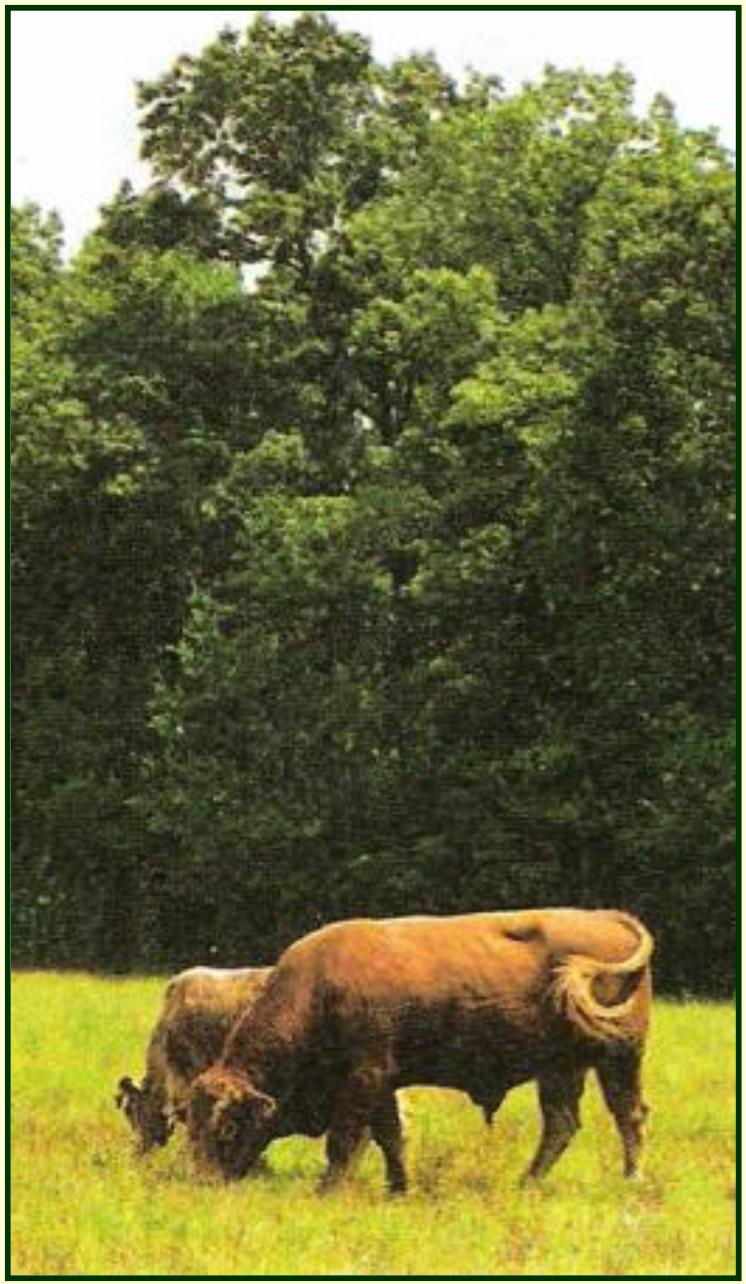
Oklahoma has more than 2,500 different varieties.

Port silt loam, from Washita County, is the official state soil.

It is excellent for cotton, grains, and pastureland.



WASHITA COUNTY



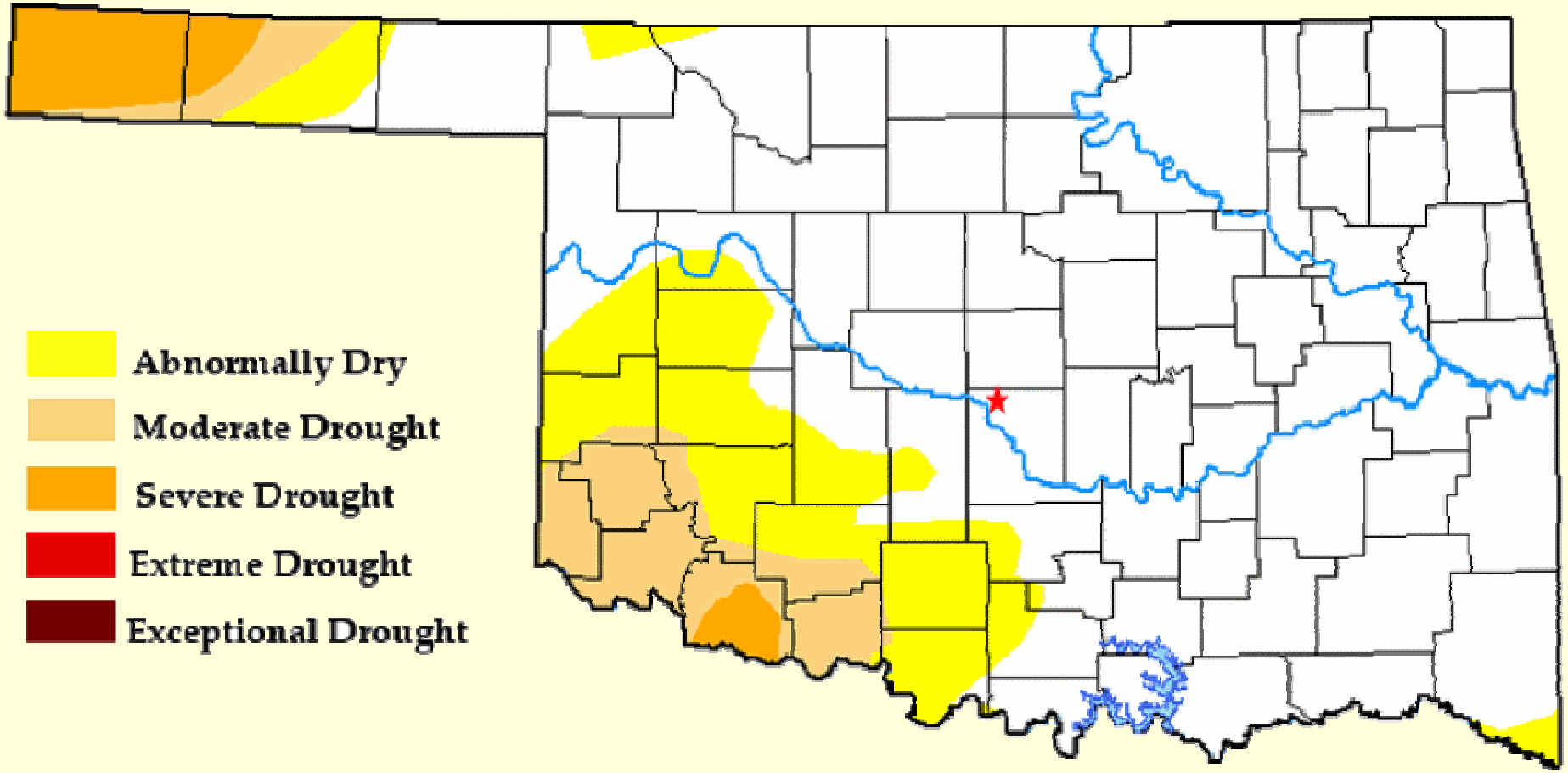
Farmers in western Oklahoma often deal with droughts, or long periods without rainfall.

A lengthy drought in the 1930s was known as "The Dust Bowl."

The dry, sandy soil there also makes farming harder.

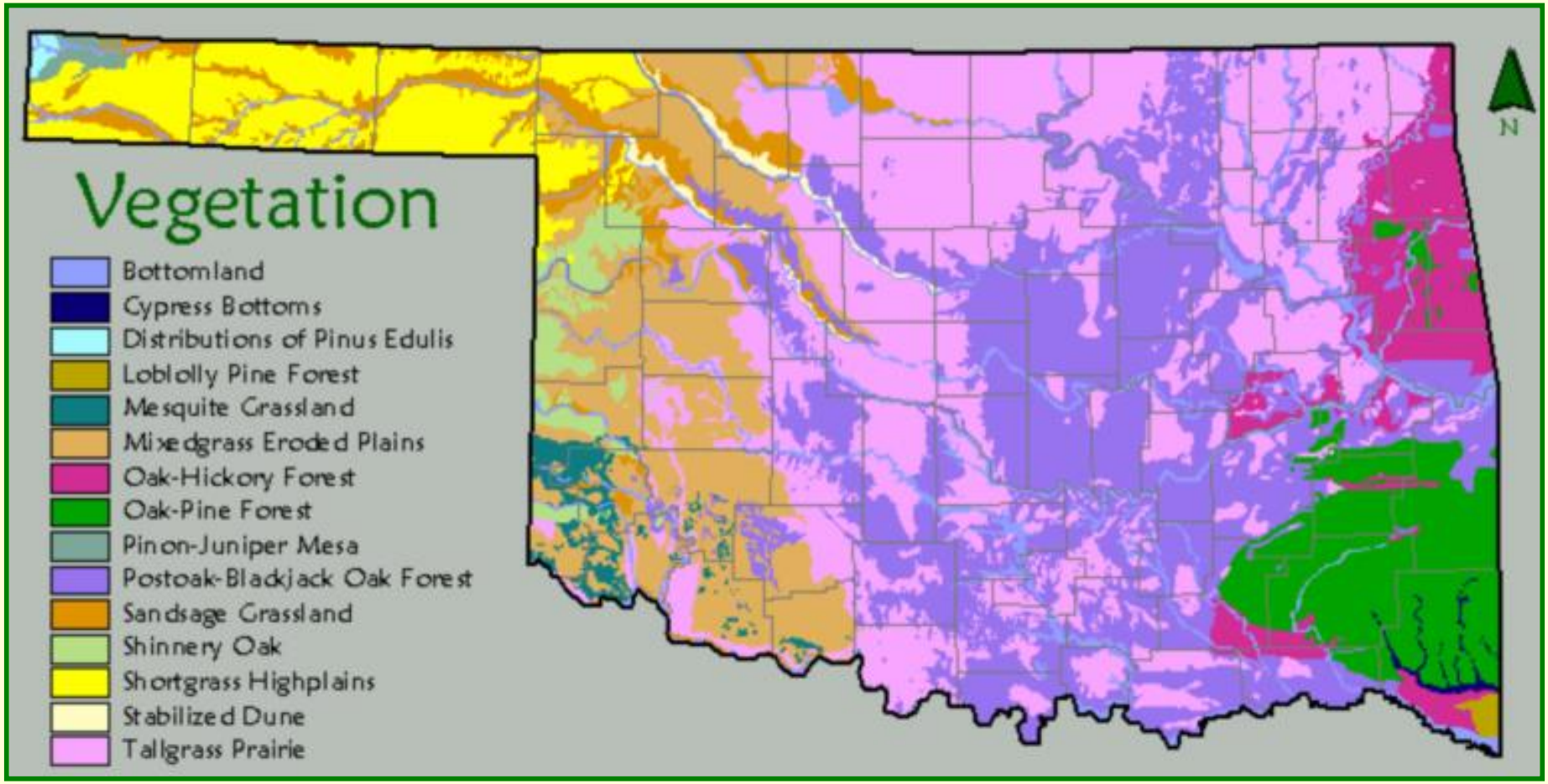
Irrigation is expensive, but cheaper than buying crops out-of-state.

Drought Monitor – January 2, 2020



Oklahoma has two major vegetation zones: the western grasslands and the eastern woodlands.

The climate of the grasslands is arid (dry) but the woodlands are humid (wet).



Central Oklahoma has Post Oak Trees.

The Cross Timbers are the transition area between the western grasslands and eastern woodlands.

In 1832, American author Washington Irving was helping survey Indian Territory. He called The Cross Timbers "forests of cast iron."

Irving's most famous novel was "The Legend of Sleepy Hollow."


What do you want to be when you grow up?
An Oklahoma natural resource!

Fossil fuels like oil, natural gas, and coal, were created underground millions of years ago from the remains of prehistoric plants and animals.

These energy resources continue to be a major part of our state's economy.

As of 2018, Oklahoma ranked fourth in the nation for the production of oil.

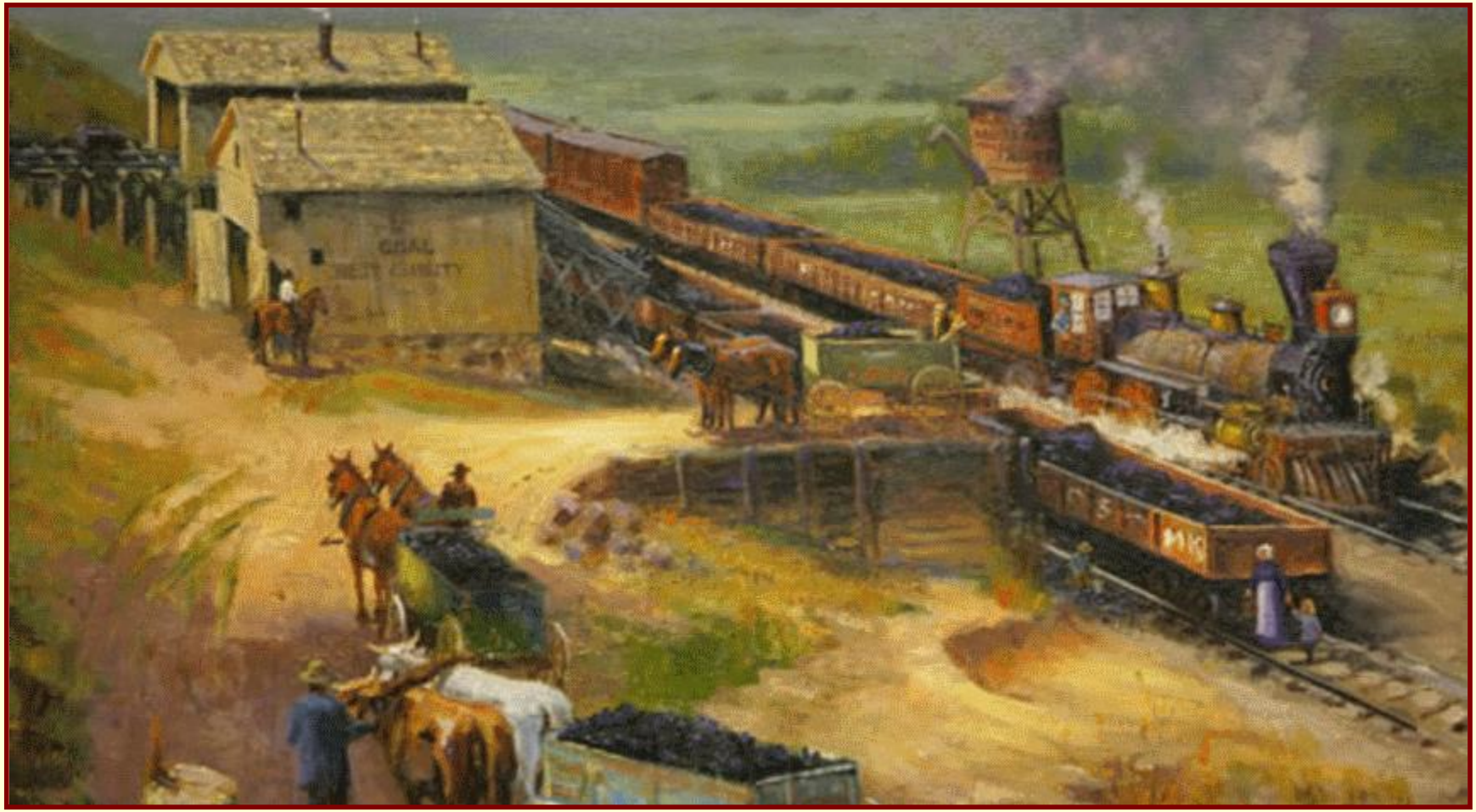
The first major oil discovery in the state came in 1897 near Bartlesville.

By 1920, production was up to more than a billion barrels a year.

Oklahoma also ranked third in the nation in the production of natural gas in 2018.

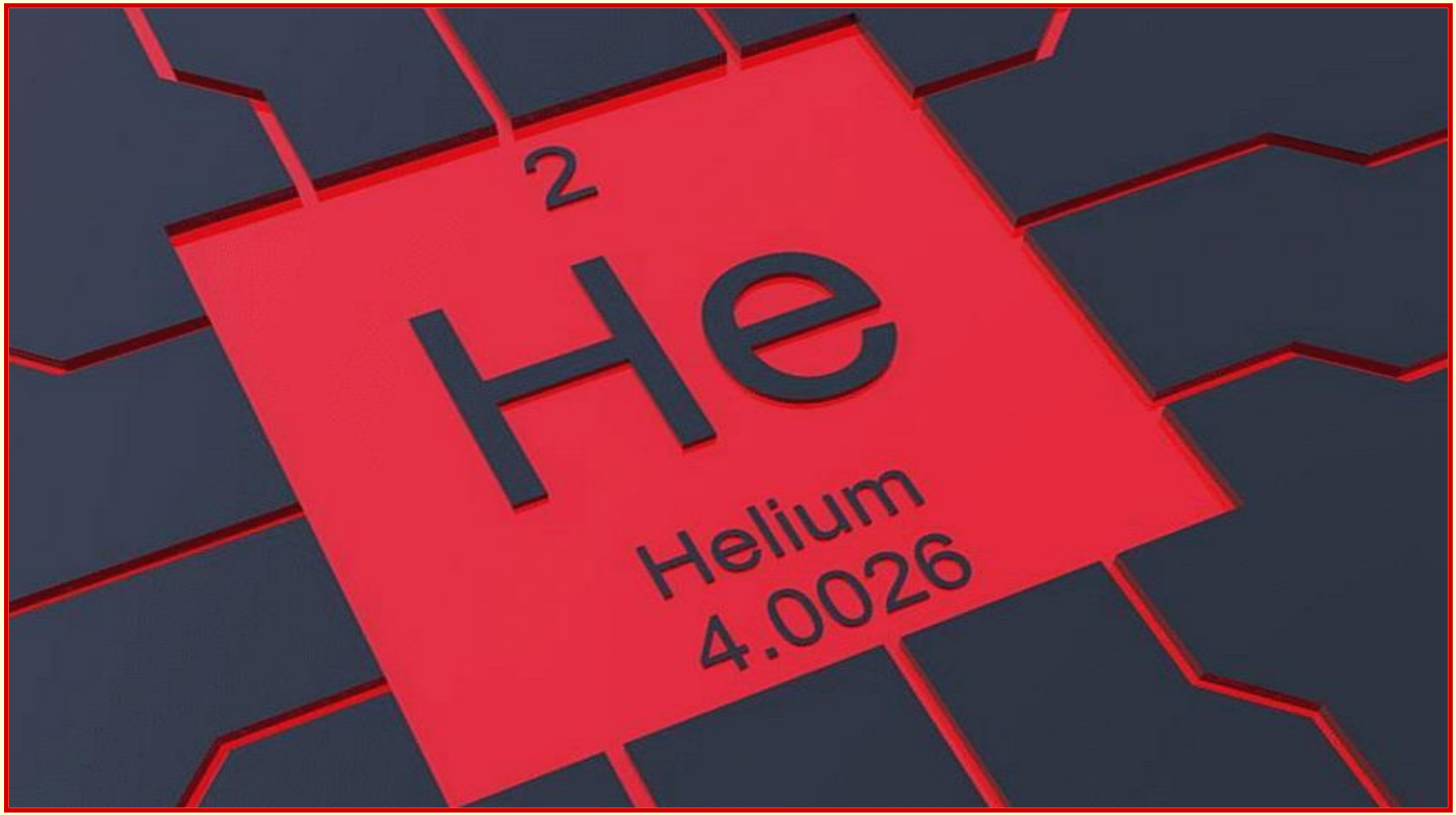
Oklahoma is not a national leader in coal. In 2018, we ranked 21st out of 25 coal-producing states.

Coal was first mined near McAlester in 1873, and Oklahoma still produces more than a million tons a year from surface mines.



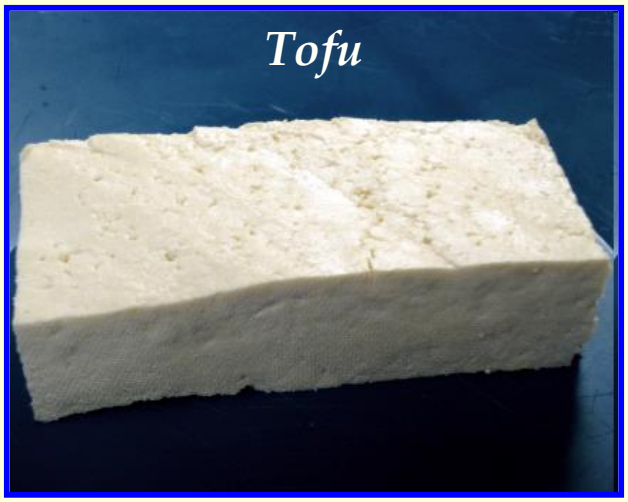
Oklahoma is third in the nation in the production of helium, a by-product of natural gas.

Because it is used in manufacturing computer chips, there is currently a world-wide shortage.



Oklahoma leads the U.S. in the production of gypsum.

Among its many uses are:



Oklahoma is the only state that produces iodine, which is used in medicines and dietary supplements.

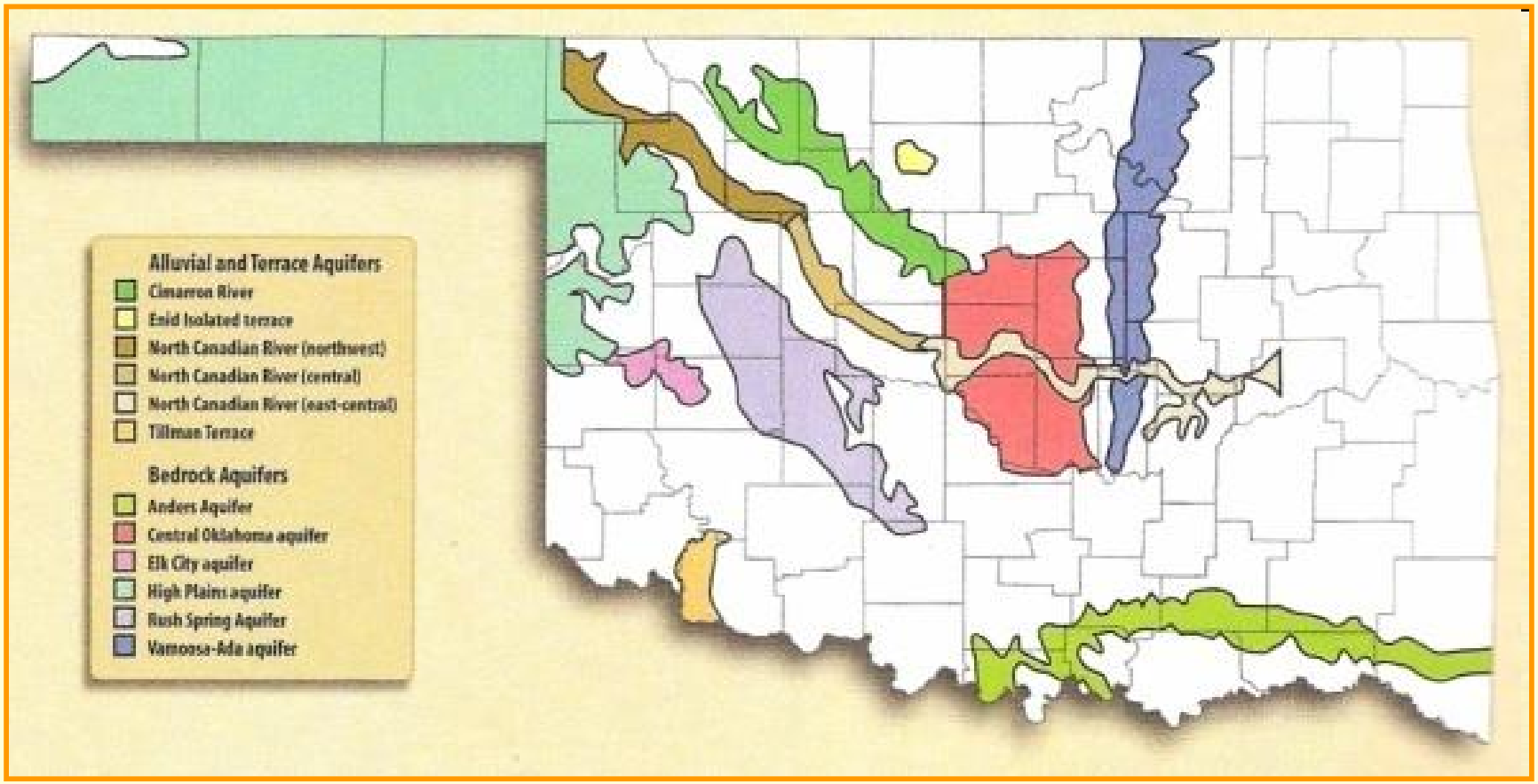
Iodine is an oilfield byproduct from the northwestern Anadarko Basin and is usually added to salt.

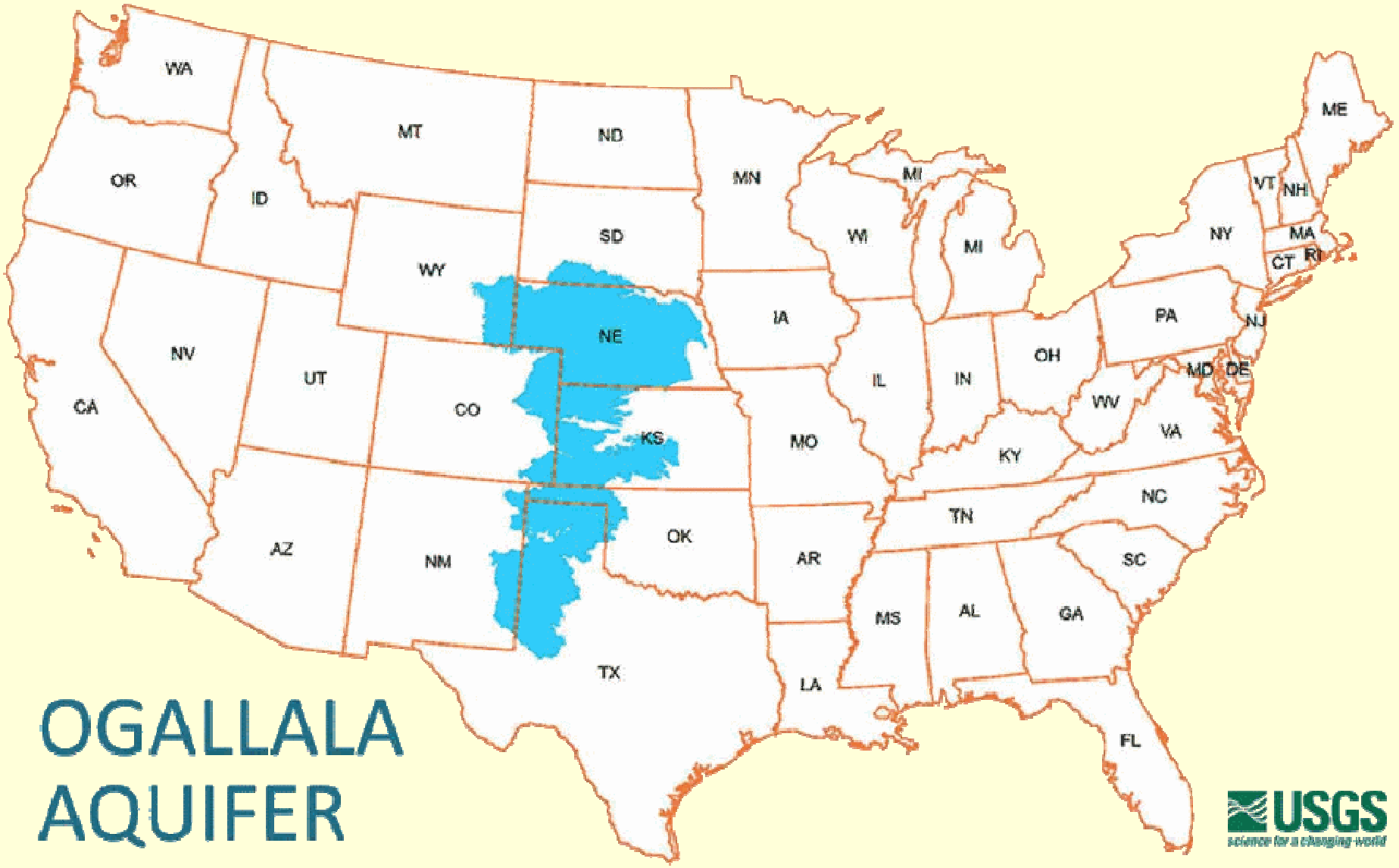
Oklahoma ranks third worldwide in the production of iodine, behind only Chile and Japan.

Another valuable resource lies beneath the surface.

Aquifers are underground pools of water contained in porous gravel, rock, and sand.

Aquifers hold groundwater that seeps down from rainfall, lakes, and ponds.





OGALLALA AQUIFER

USGS
science for a changing world

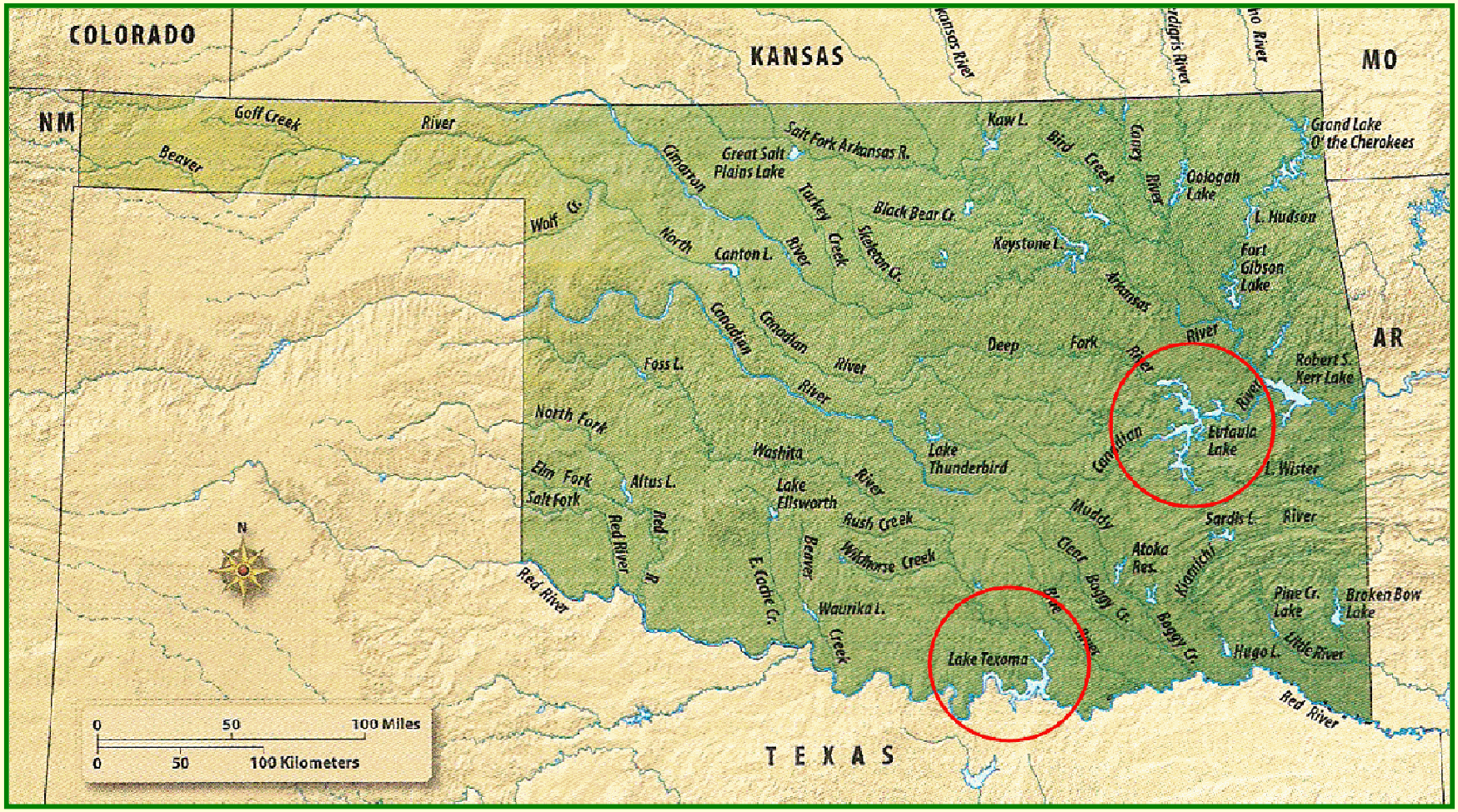
Nearly half of the fresh water used in Oklahoma comes from tapping into aquifers.

Spring water

Well water

Our largest lakes are Eufaula, at 105,000 surface acres, and Texoma, at 88,000 surface acres.

Oklahoma has hundreds of lakes, 34 major reservoirs, and more than 500 rivers and streams.



Western lakes supply irrigation for agriculture, while many eastern lakes are used for recreation.

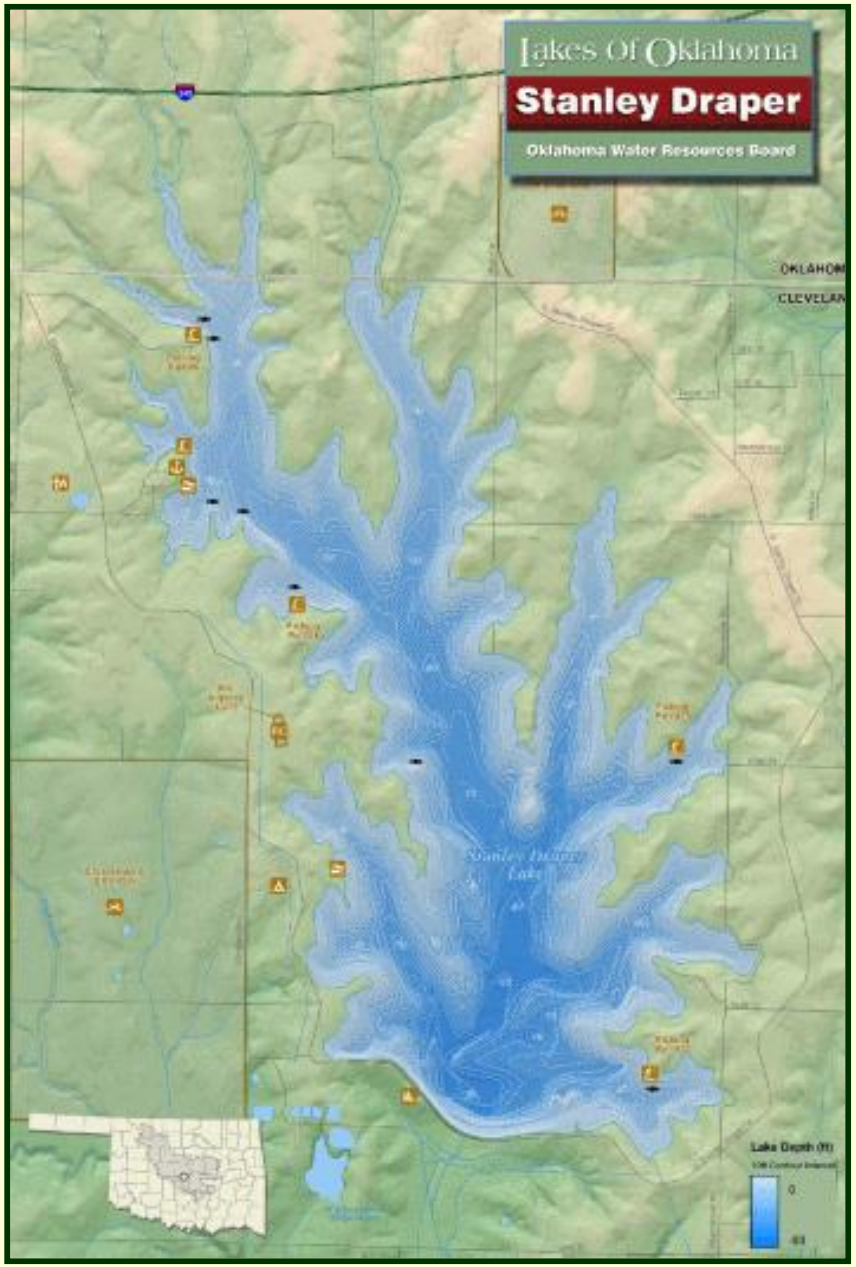
Lake Murray is pictured below.

Since the Dust Bowl, Oklahoma has created dozens of new lakes.

Lake Stanley Draper opened as a reservoir east of Moore in 1963.

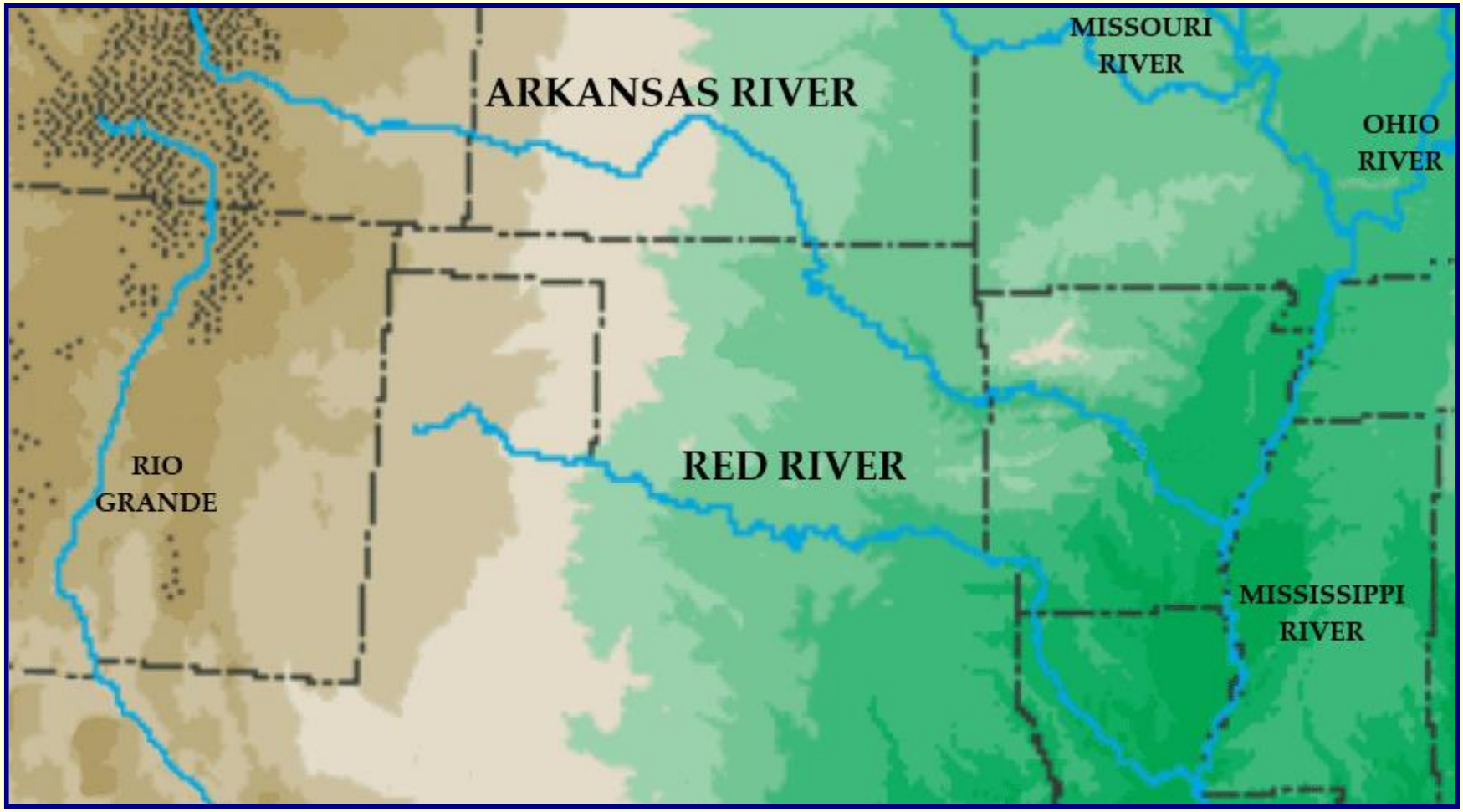
It is south of I-240 between Midwest Boulevard and Post Road.

In the eastern half of the state, the lakes also provide flood control.



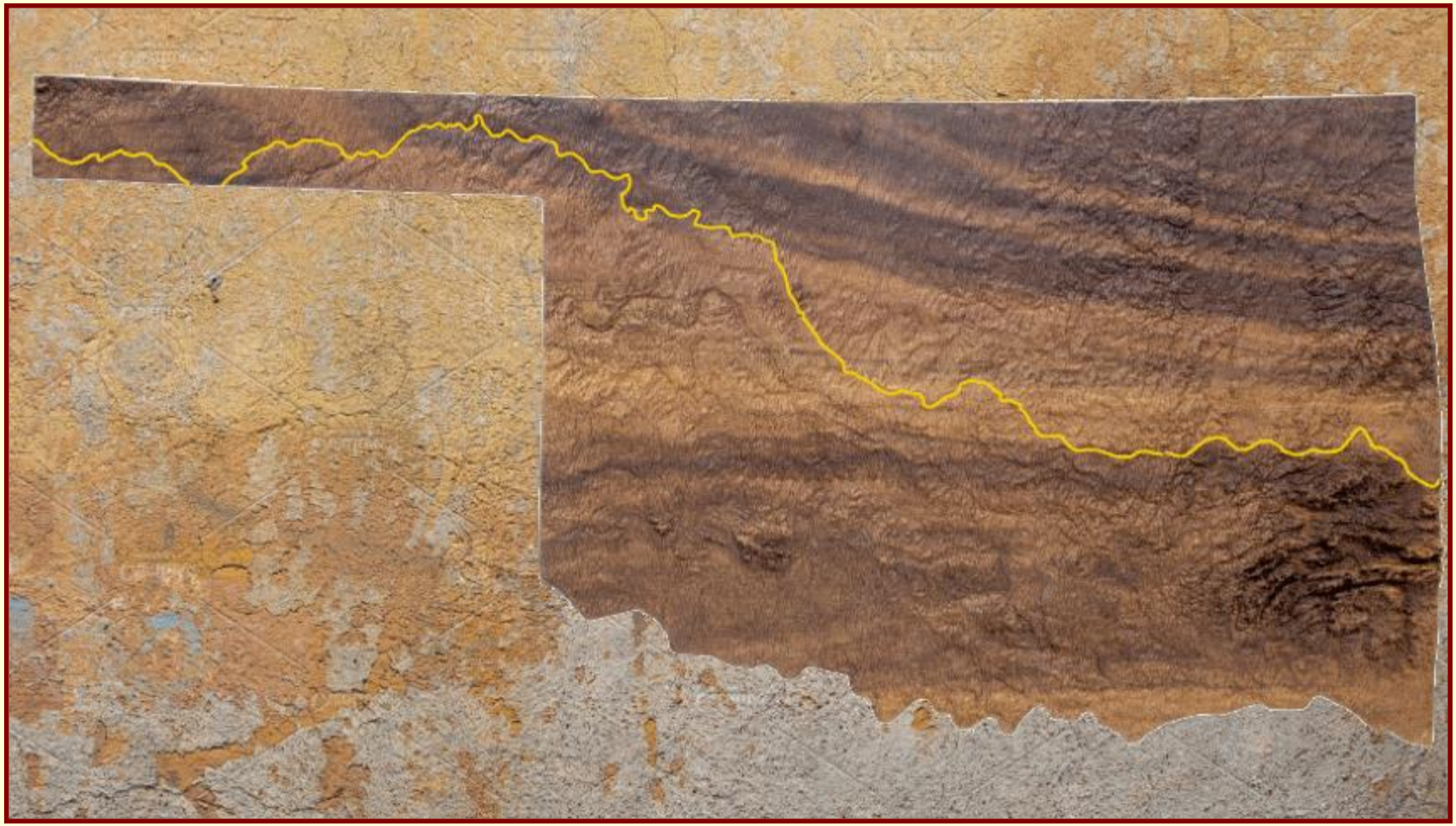
The two largest rivers, the Arkansas River and the Red River, provide drainage for Oklahoma.

The Arkansas carries two-thirds of the state's runoff water.
The Red River drains the other one-third.



The longest river, the North Canadian, crosses 766 miles from the Panhandle to the Arkansas River.

In the Panhandle, it is also known as The Beaver River;
and in the central part of the state, it is designated as The Oklahoma River.



In the 1970s, Oklahoma City's section of the North Canadian River had to be mowed twice a year.

This is a view of the "new" Oklahoma River, looking north toward Downtown and Bricktown.

The Red River creates our state's southern border.

Throughout history, it has been a natural boundary between opposing forces.

France** vs. **Spain

U.S. vs. Mexico

***The Union** vs.*
The Confederacy

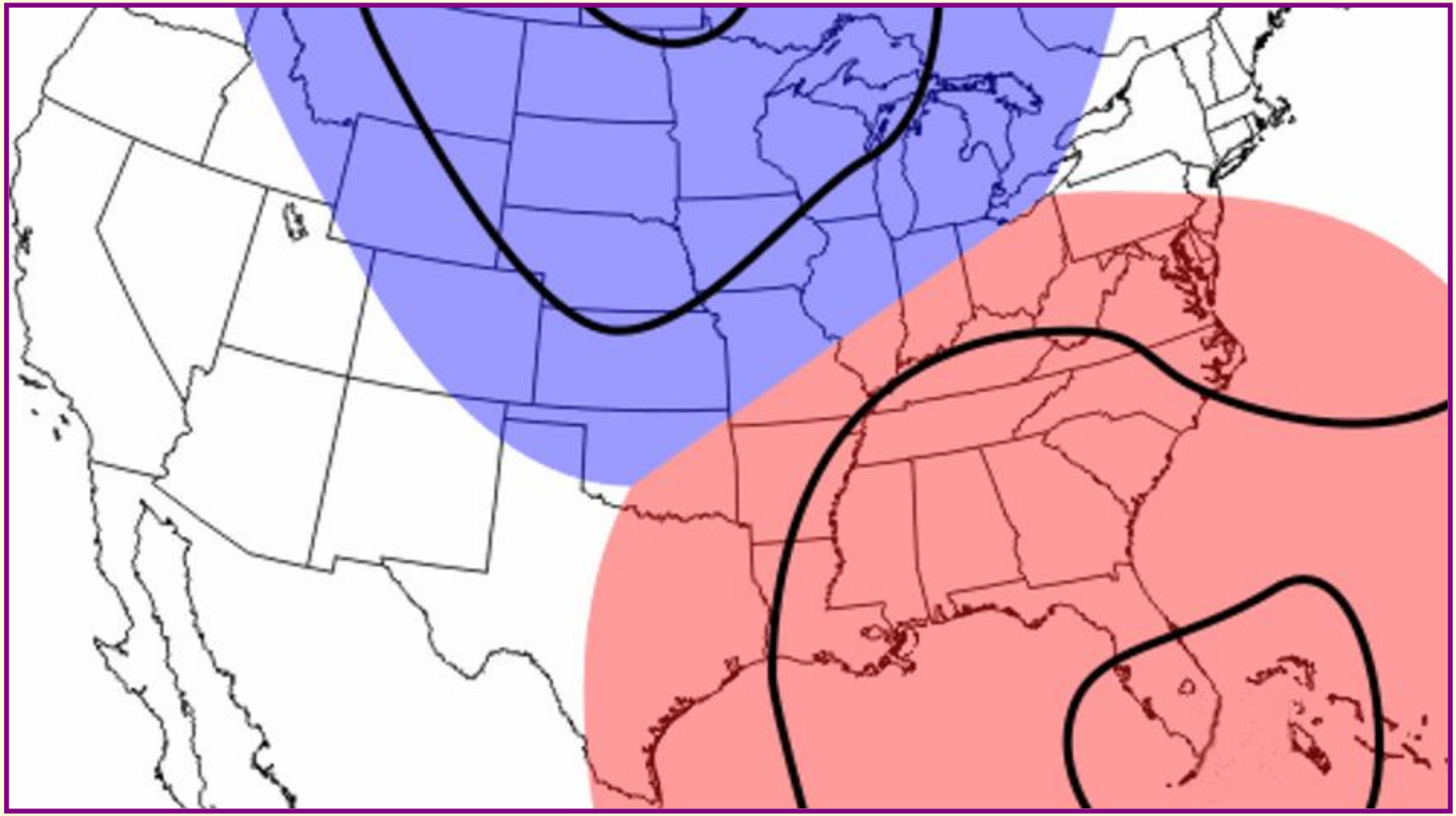
The University of Oklahoma
and
The University of Texas

Section 4: Weather and Climate

As Will Rogers
once said,
"If you don't
like the weather
in Oklahoma,
just wait a minute…
it'll change."

Because of Oklahoma's location between opposing air masses, conditions can change unexpectedly.

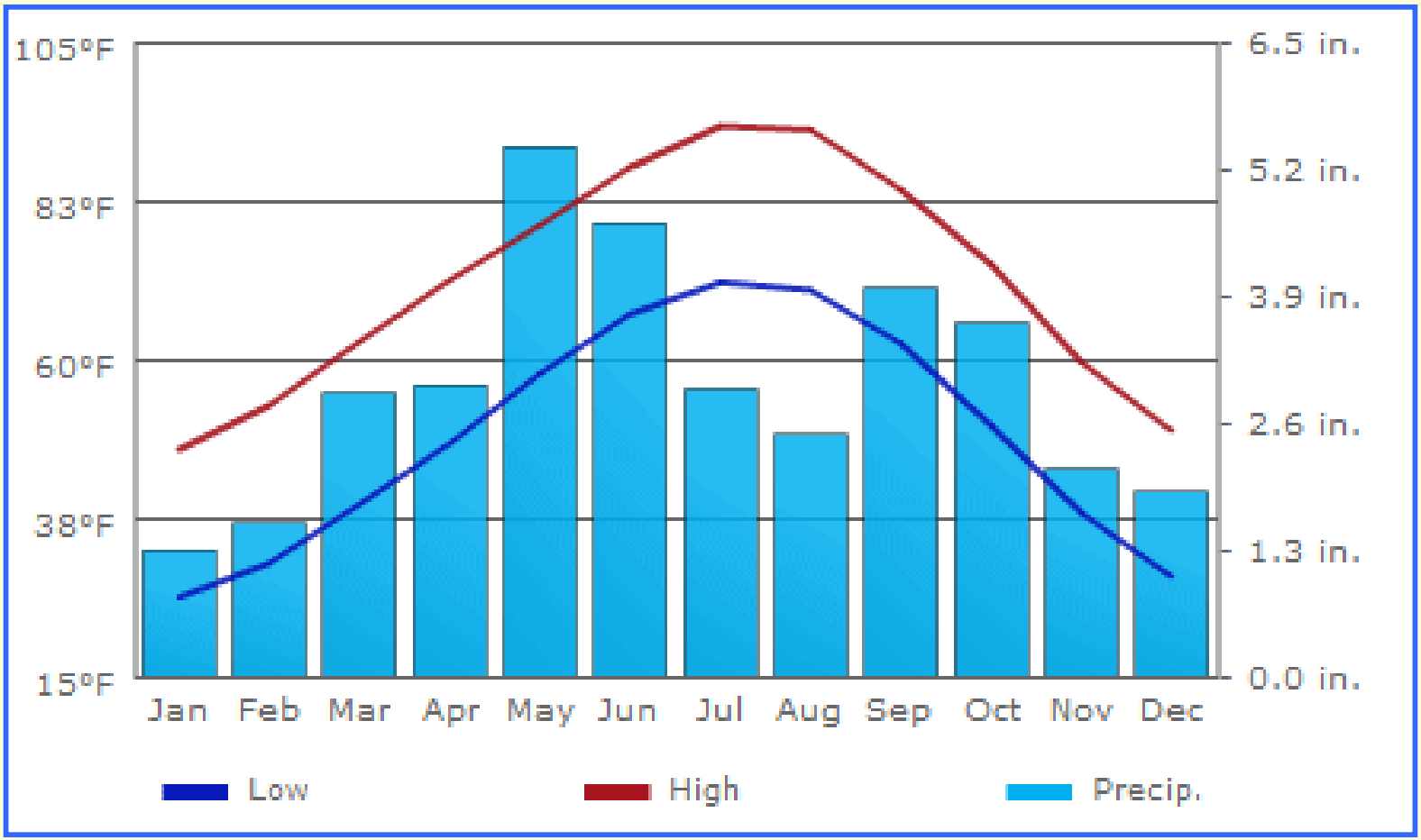
On Nov. 11, 1911, Oklahoma City recorded a temperature drop of 66° - from 83° just before noon to 17° by midnight.



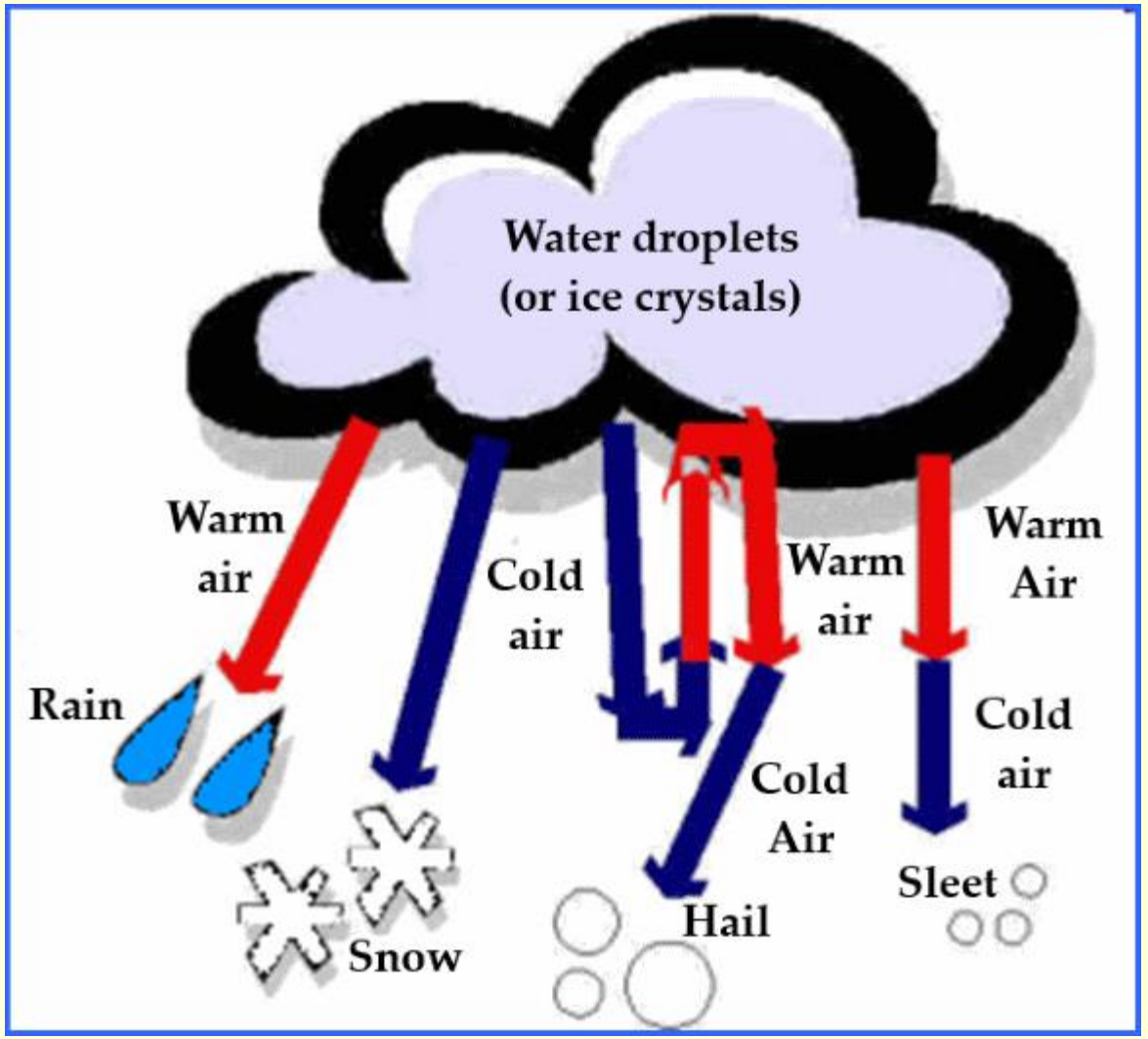
Weather measures the current conditions of the atmosphere: temperature, precipitation, and wind.

Climate is the average weather of an area over a long period of time.

Oklahoma's climate is considered temperate, or mild.



Precipitation is water that falls to the Earth as rain, snow, hail, or sleet.



A location's climate will be affected by its latitude, or distance from the Equator.

ALASKA

will always have a cold climate.

HAWAII

will always have a hot climate.

Alaska may have several weeks of hot weather but it will always have a cold climate.

Hawaii may have cold weather – and even snow - but it will always have a hot climate.

Hawaiian Times

Tuesday, March 30, 2012 50c

BLIZZARD IN HONOLULU! Ski Diamond Head

Freak Storm Hits Honolulu, in a very movie-esque fashion. Where did this come from?

By Maura Reynolds
Times Staff Writer

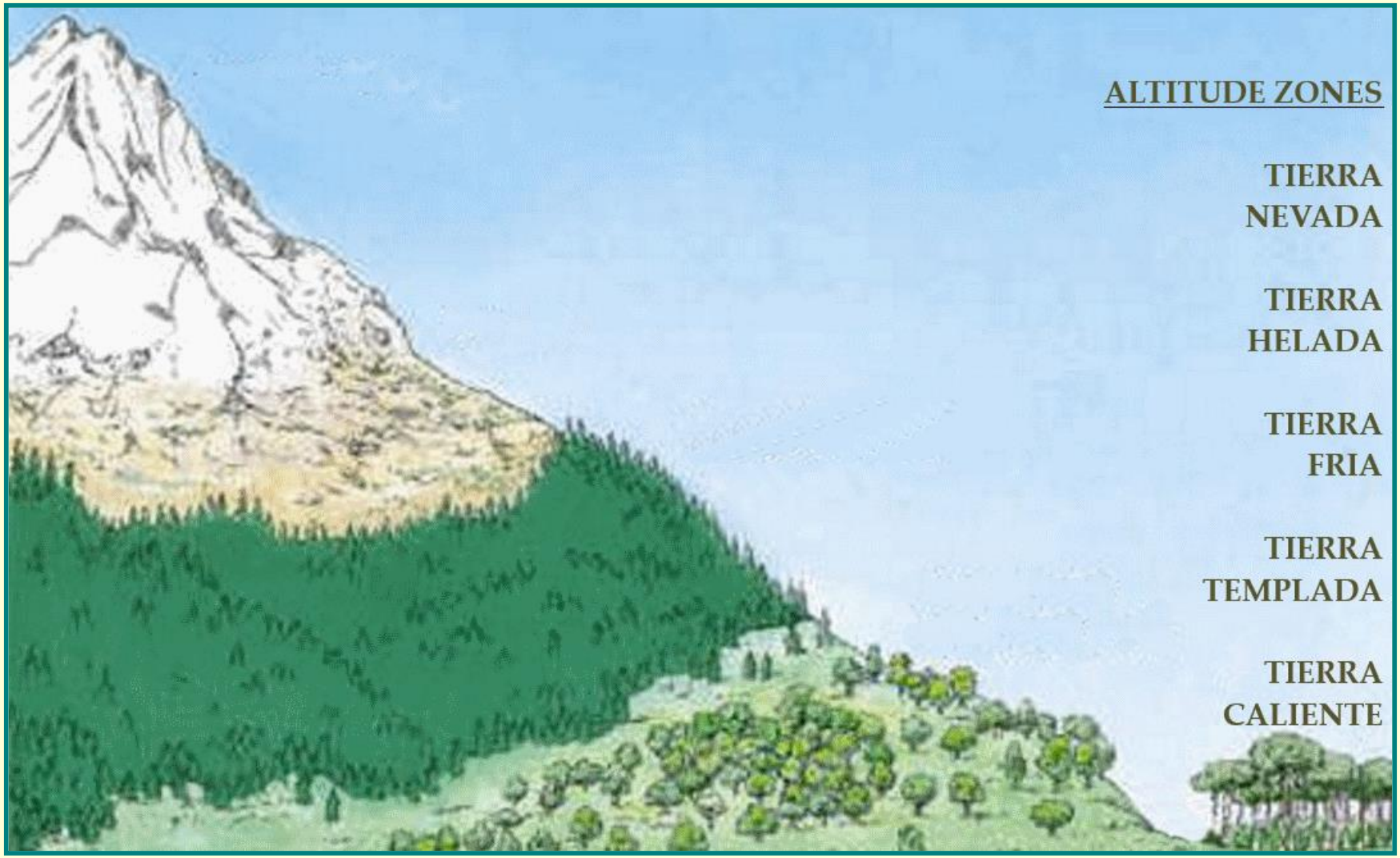
strategic shift, the Bush administration has decided to pour at least $250 billion directly into major banks and expand federal insurance protection to encourage financial institutions to resume lending to one another.

Stocks soared on hopes that policymakers had finally hit on the right formula to thaw the frozen credit system and quell the financial calamity that has hammered giant banks and small investors alike. The Dow Jones industrial average rocketed more than 900 points, its biggest one-day point gain ever.

"The history of banking crises suggests very strongly that you need heavy government involvement. Half measures don't work," said Nariman Beh-

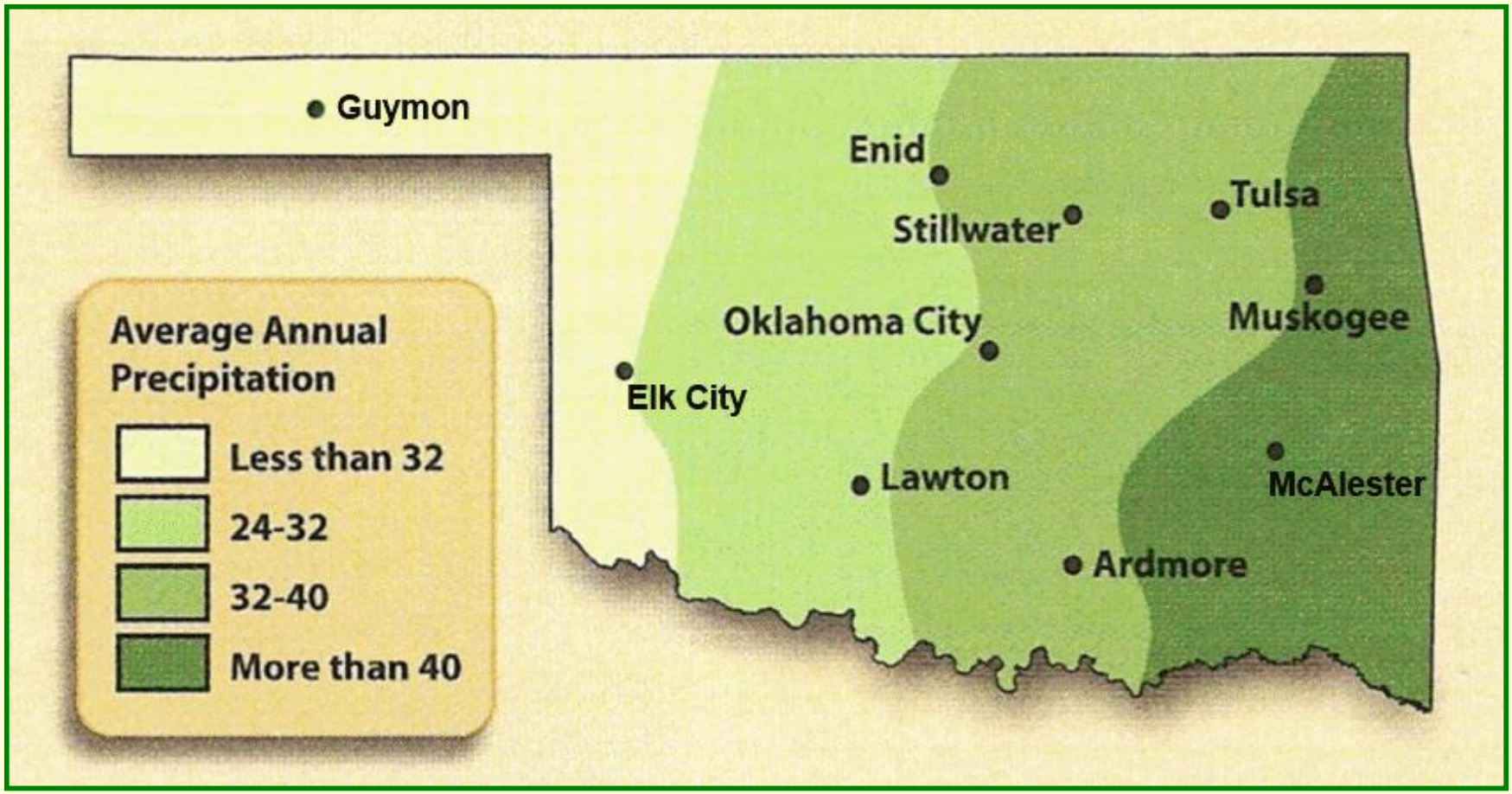
A location's climate can also be affected by elevation.

Lower elevations have warmer climates; higher elevations have colder climates.



Elevation will also affect the amount and type of precipitation.

Lower elevations tend to have more precipitation, and as rainfall rather than snow. Higher elevations tend to have less precipitation, and as snow rather than rain.

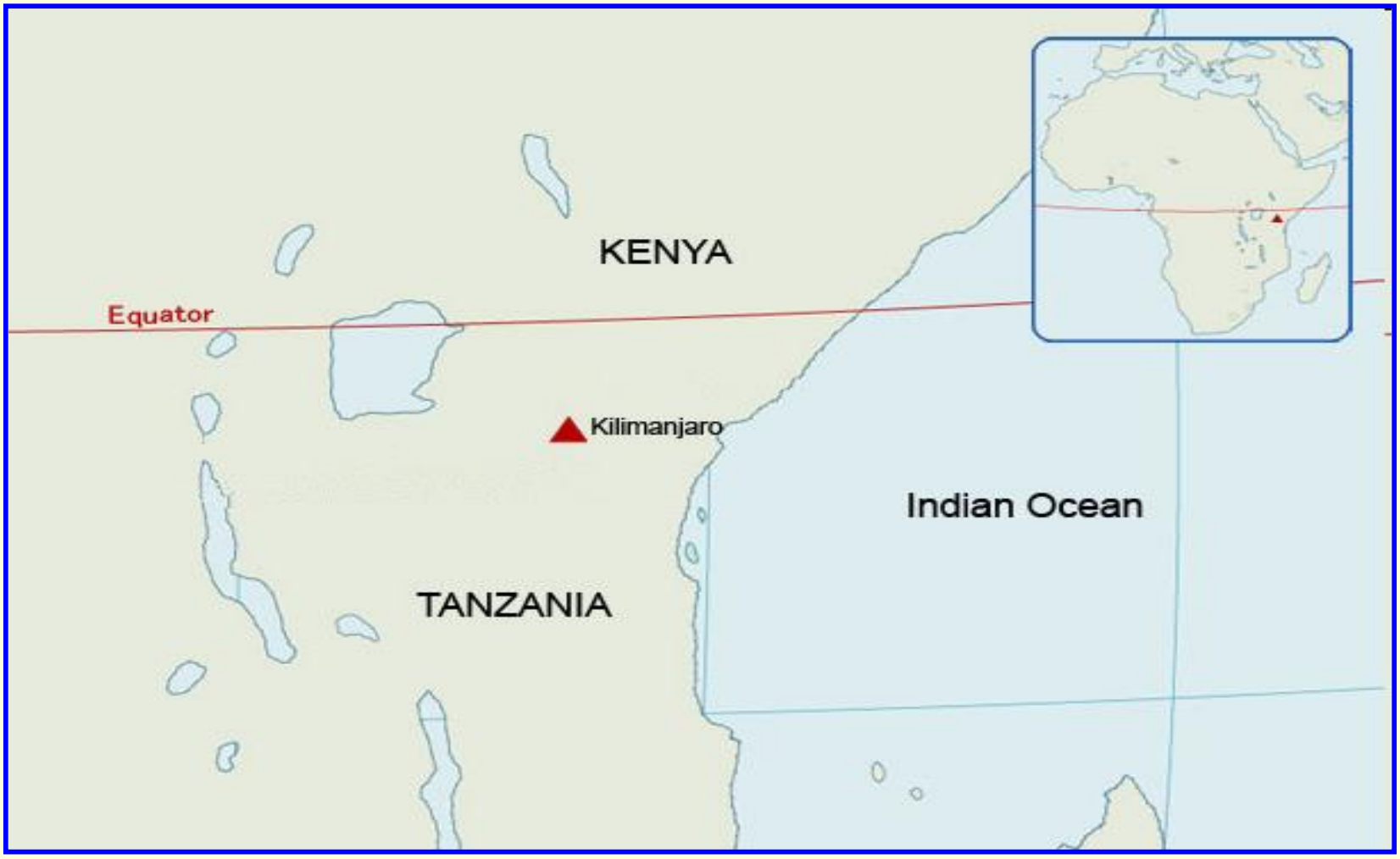


Elevation in the Panhandle and western Oklahoma contributes to the difficulty of farming there.

The colder climate leads to a shorter growing season.

Mt. Kilimanjaro is an example of how climate can be affected by latitude and elevation.

It is less than 100 miles from the Equator – but it is 19,300 feet above sea level.

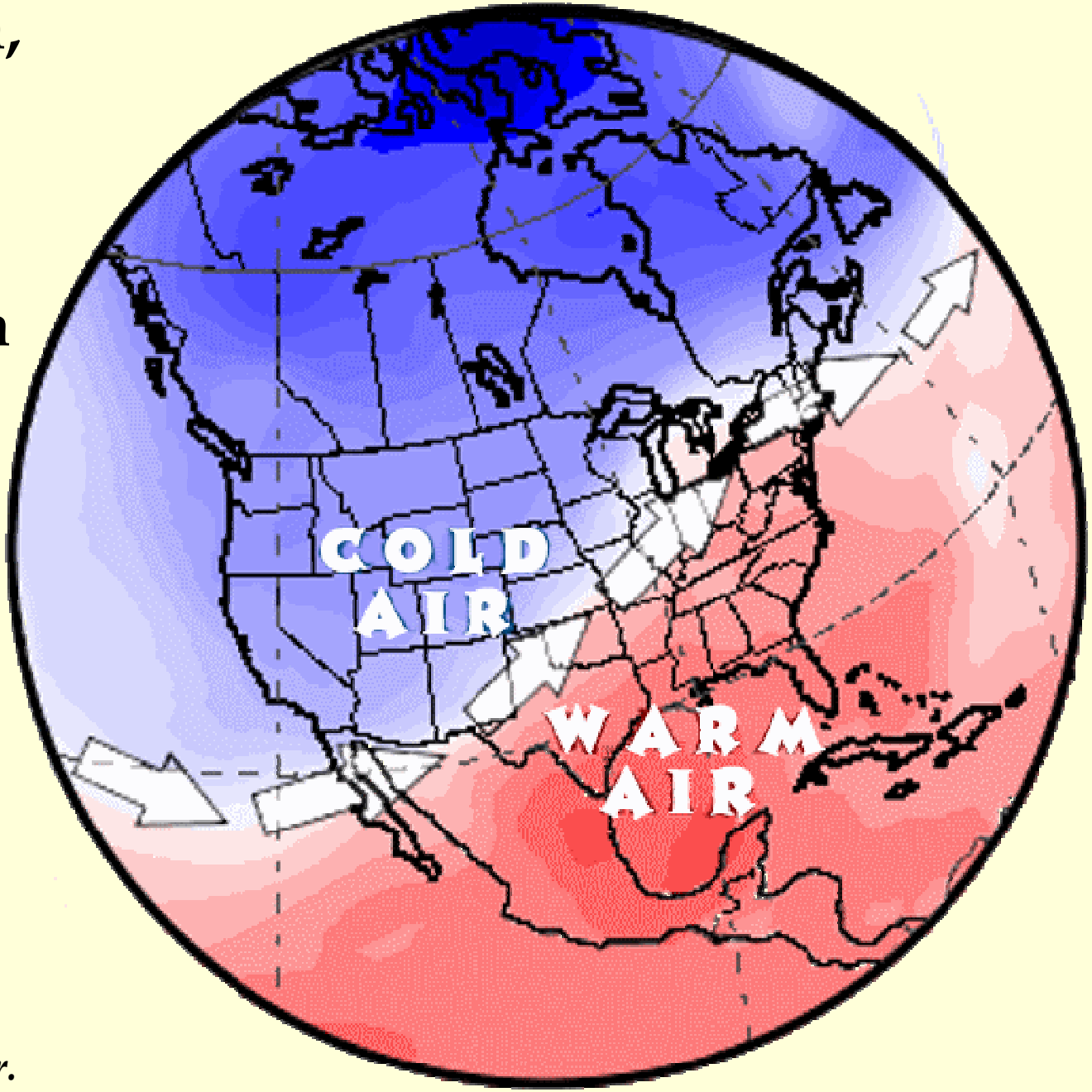


Oklahoma averages a million lightning strikes each year, second only to Florida.

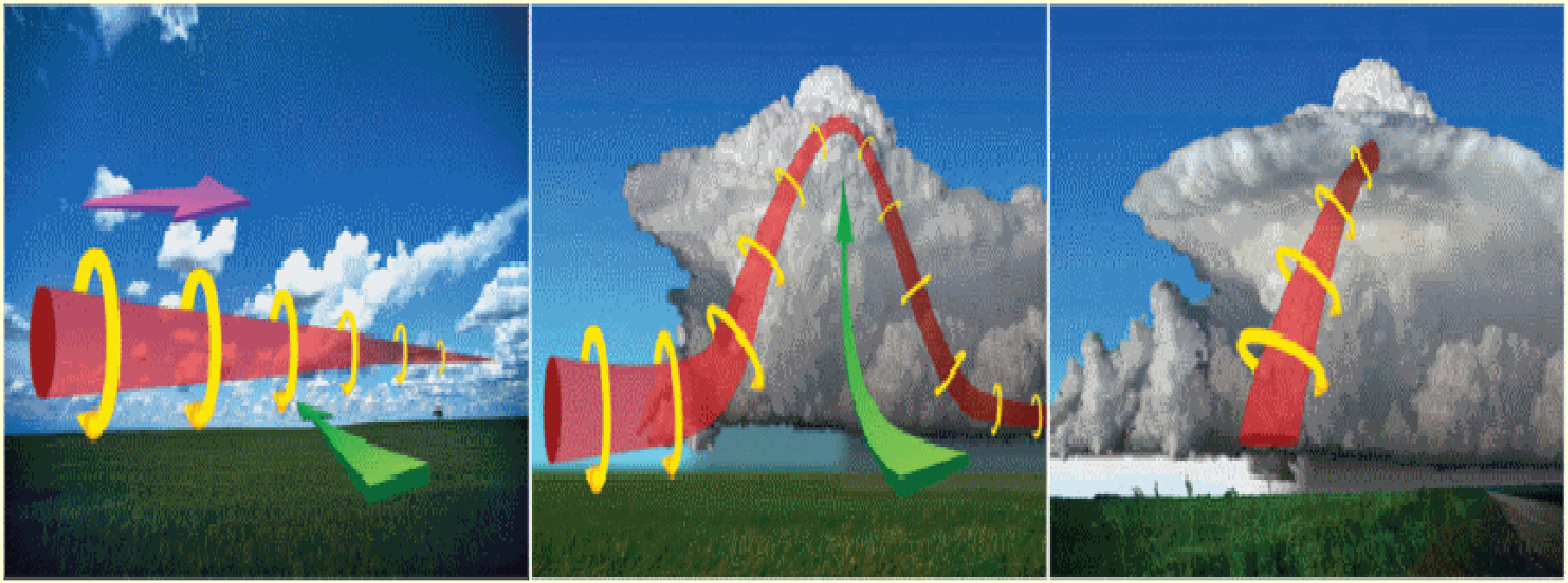
Spring weather also includes strong winds and thunderstorms.
Frequent hailstorms have damaged property and destroyed crops.

The Jet Stream, a fast-moving air current that crosses North America from west to east, creates Oklahoma's severe springtime weather.

Dry, polar air is pulled along, where it collides with moist, tropical air.



The collision initially creates a horizontal column.

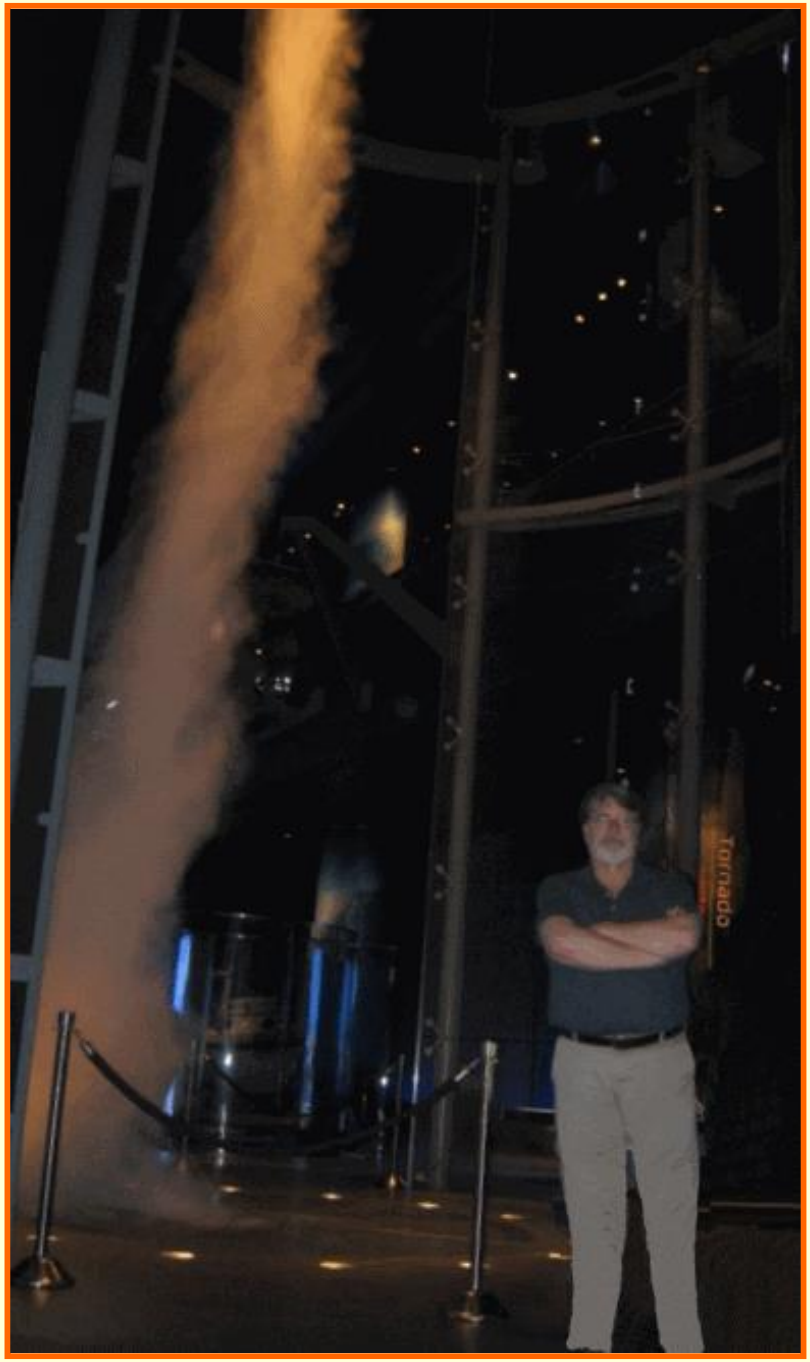


As more warm air is pulled in, the updraft causes the middle to rise and one end to descend toward the Earth.

The result is a funnel cloud called a tornado, that rotates at destructively high speeds.

The Enhanced Fujita Scale measures the intensity of tornadoes.

The scale was created by Dr. Tetsuya "Ted" Fujita in 1971 and revised in 2007.



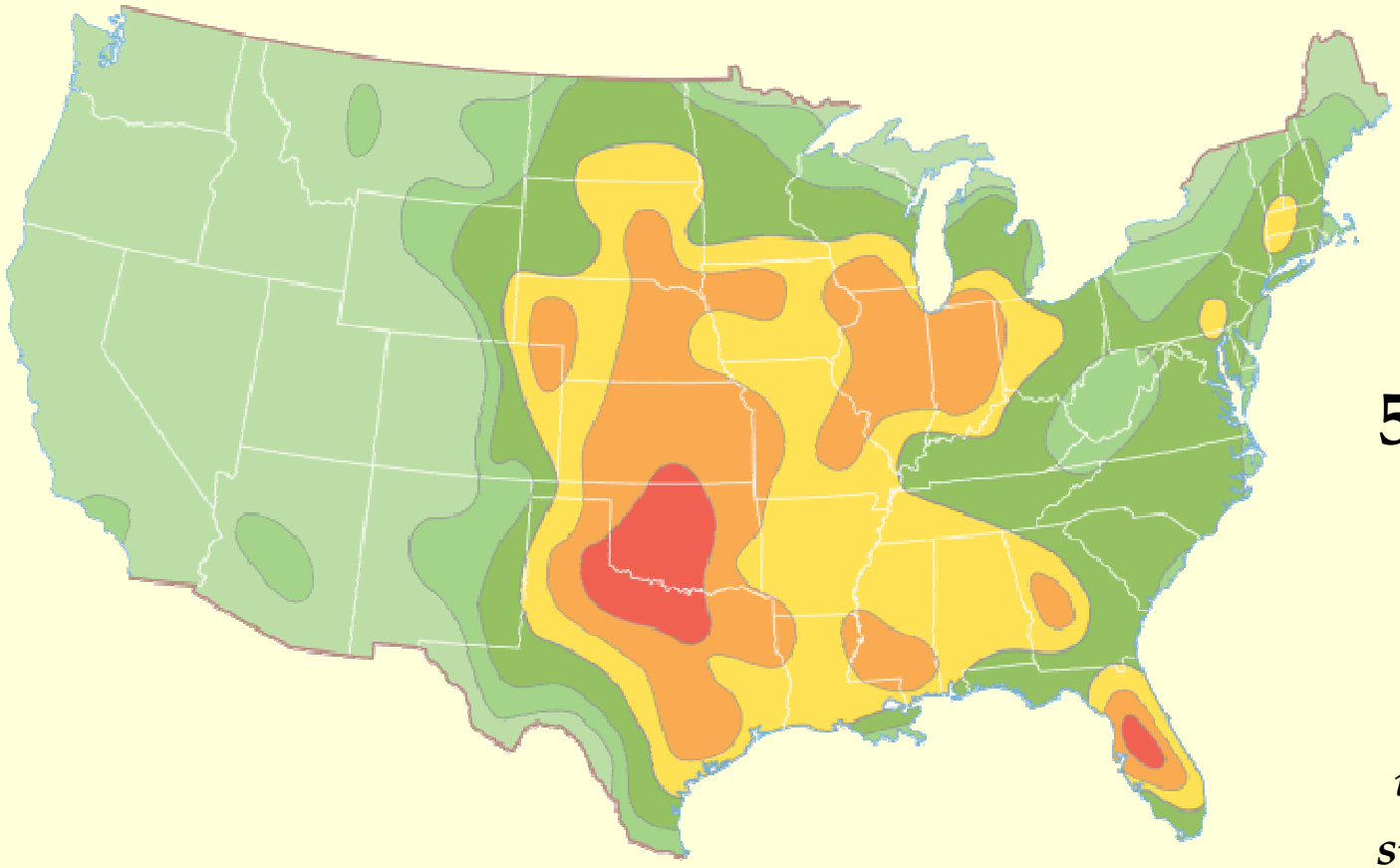
At the Chicago Museum of Science and Industry, there is a two-story tornado "generator" based on Dr. Fujita's work.

I visited there in the summer of 2014.

EF Rating	Wind Speeds	Expected Damage		
EF-0	65-85 mph	'Minor' damage: shingles blown off or parts of a roof peeled off, damage to gutters/siding, branches broken off trees, shallow rooted trees toppled.		
EF-1	86-110 mph	'Moderate' damage: more significant roof damage, windows broken, exterior doors damaged or lost, mobile homes overturned or badly damaged.		
EF-2	111-135 mph	'Considerable' damage: roofs torn off well constructed homes, homes shifted off their foundation, mobile homes completely destroyed, large trees snapped or uprooted, cars can be tossed.		
EF-3	136-165 mph	'Severe' damage: entire stories of well constructed homes destroyed, significant damage done to large buildings, homes with weak foundations can be blown away, trees begin to lose their bark.		
EF-4	166-200 mph	'Extreme' damage: Well constructed homes are leveled, cars are thrown significant distances, top story exterior walls of masonry buildings would likely collapse.		
EF-5	> 200 mph	'Massive/incredible' damage: Well constructed homes are swept away, steel-reinforced concrete structures are critically damaged, high-rise buildings sustain severe structural damage, trees are usually completely debarked, stripped of branches and snapped.		


Dallas, Texas - April 3, 2012

Central Oklahoma is at the heart of a region known as Tornado Alley.



Tornado Alley

Oklahoma averages 56 tornadoes a year.

However, there were only 16 in 2014, the lowest since record-keeping began in 1950.

There were only 41 tornadoes in Oklahoma in 2018, and for the first time since 2006, no deaths were recorded.

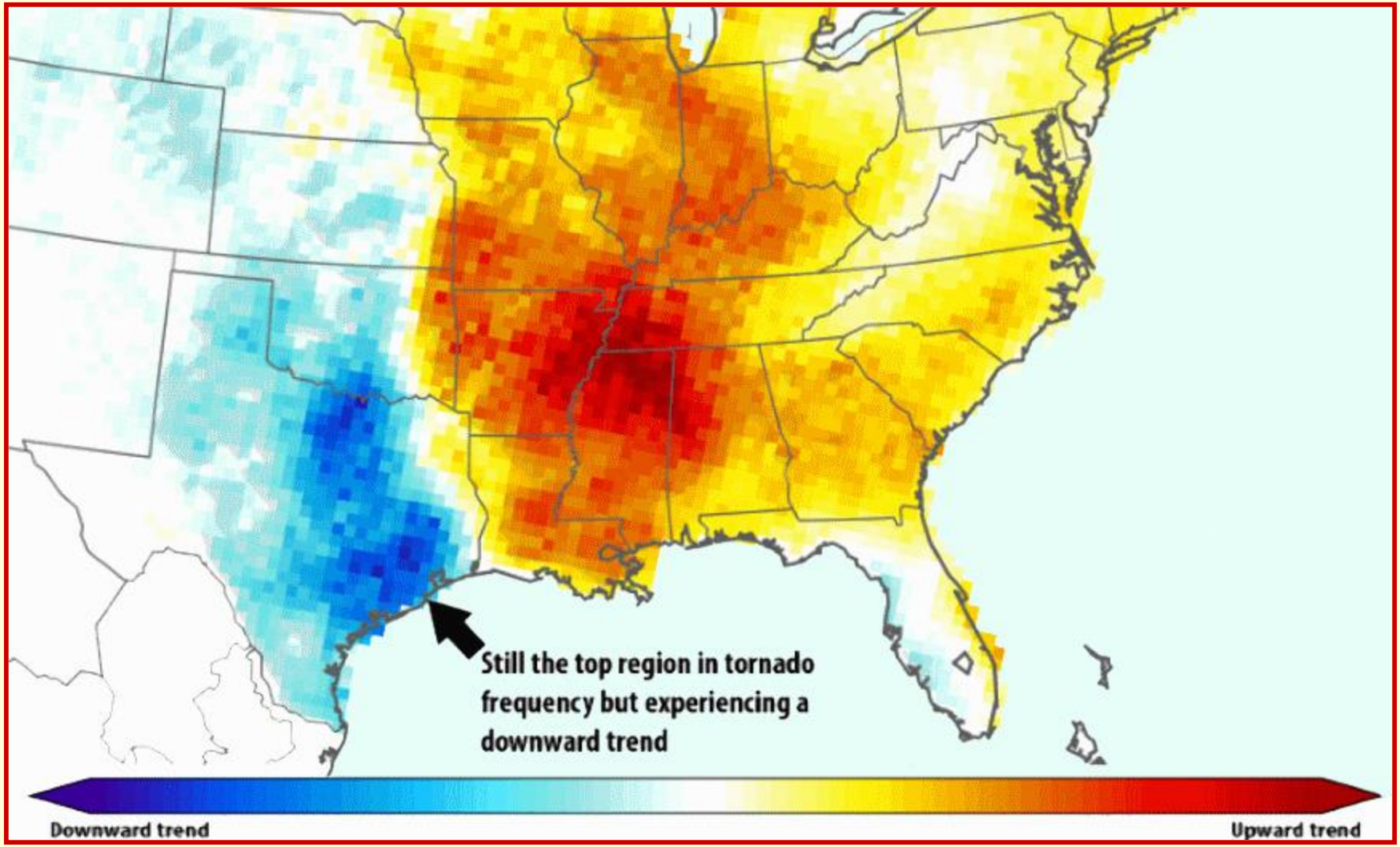
On Oct. 9, 2018, an EF1 touched down in Midwest City, overturning cars and damaging several businesses.

But in 2019, Oklahoma recorded 147 tornadoes, making it the most active year since records began.

This is the aerial view of the path of the May 25 EF3 tornado that struck El Reno.

The "Next" Tornado Alley?

As the Great Plains get drier, there is less moisture to power storms. But tornado activity is increasing along the Mississippi River Valley.



The National Severe Storms Laboratory in Norman uses state-of-the-art technology to monitor weather and provide advance warnings.

WHAT TO KNOW

WATCH VS. WARNING

TORNADO WATCH

A tornado is possible within your area.

Listen to local news for important updates.

Know where to take shelter.

TORNADO WARNING

A tornado is happening or imminent.

Listen to local news for important updates.

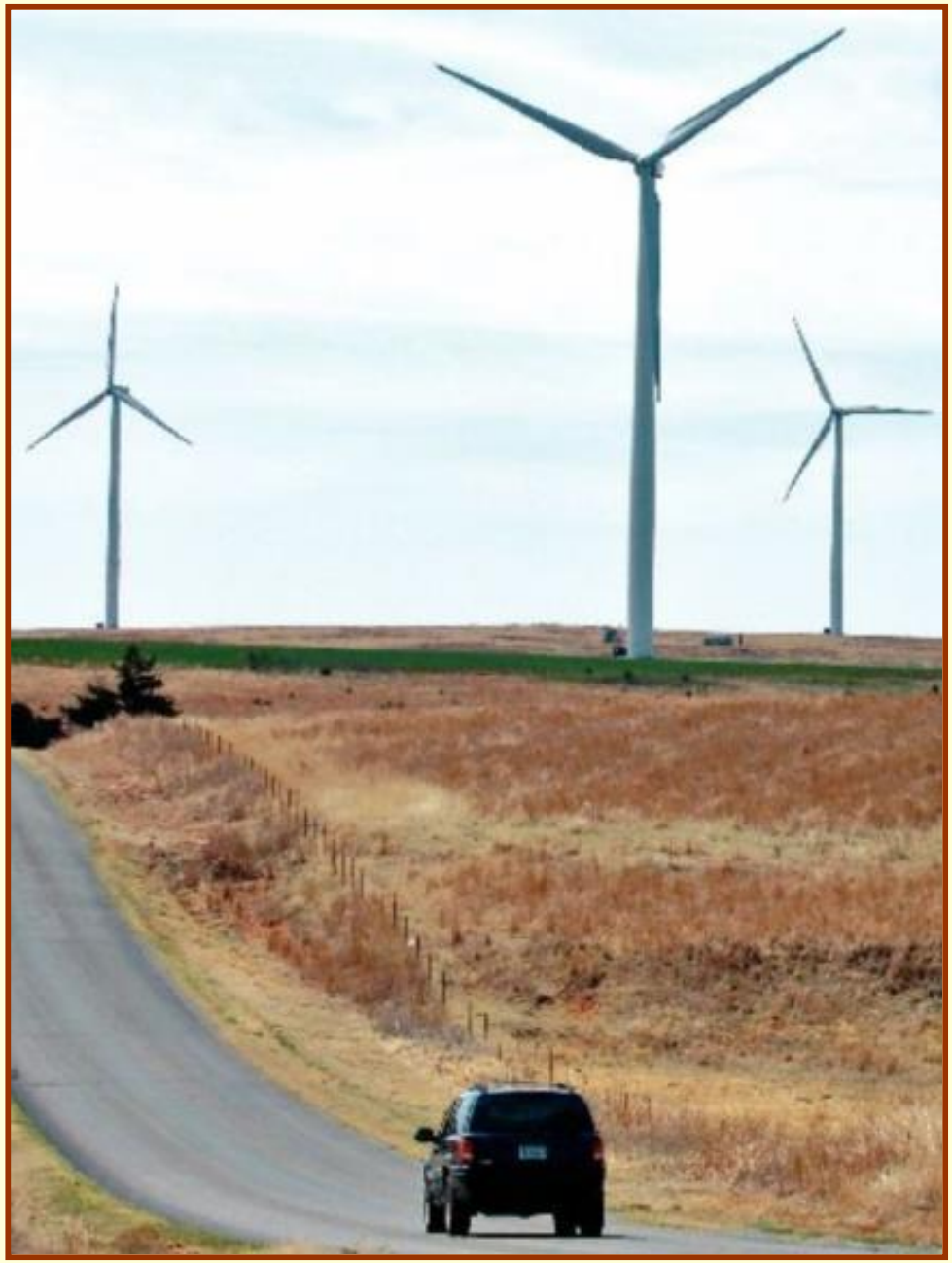
Take shelter immediately.

Wind farms,
a new industry
in Oklahoma,
use giant turbines to
generate electricity.

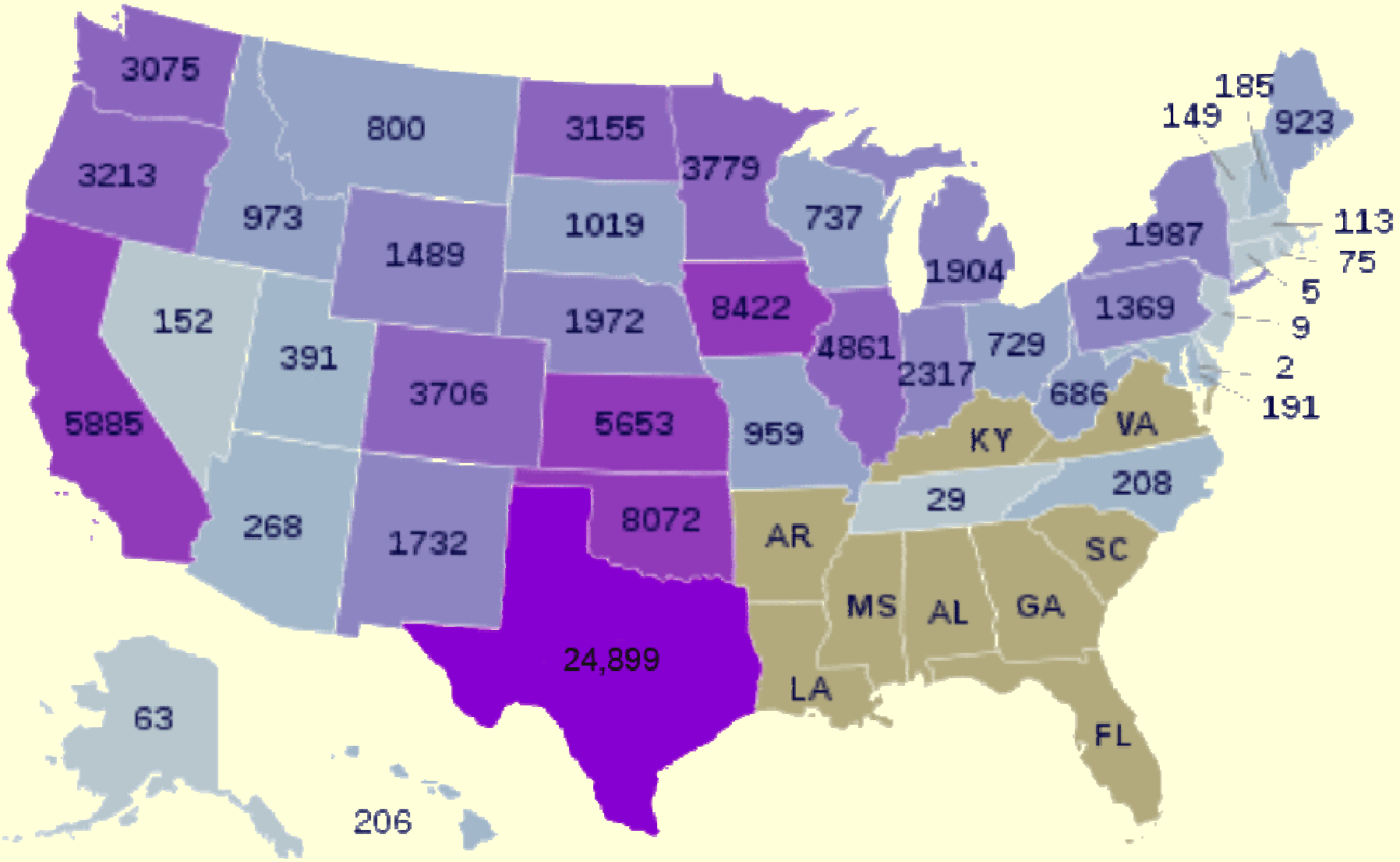
There are wind farms located in more than 20 Oklahoma counties.

Although the winds of the Great Plains can be damaging, they add $6.5 billion to the American economy.

This resource is even referenced in our State Song: "Oklahoma… where the wind comes sweepin' down the Plain!"



As of 2018, Oklahoma was third in the nation in the production of energy from wind.



Our state is also examining renewable energies (alternative power sources like water and solar).

Fossil fuels are non-renewable energies and may run out within 300 years.

Water can be used to produce hydroelectricity and solar panels convert sunlight into usable power. Moore averages 234 sunny days a year.

For thousands of years, Oklahoma's diversity has made it a land of opportunity.