

# Trail Explorer

by CTRMA



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MOBILITY AUTHORITY



Download the free **Trail Explorer by CTRMA** app to bring to life the history and natural wonders of the Hill Country with audio narration and augmented reality (AR) experiences!



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1



## SCAN

◀ Find the **brackets** on each sign to launch Trail Explorer.

Start with the brackets to the left on this sign!

2



## LISTEN

◀ Look for **this icon** for audio narration.

◀ Puede escuchar las narraciones de audio en español usando la aplicación Trail Explorer. Busque este símbolo para escuchar.

3



## ENJOY!

◀ Look for **this icon** for an interactive AR experience.





# Animals of the Region



Texas is home to many captivating forms of wildlife. As residents of Central Texas, we are custodians of their natural habitat, and it's crucial we are respectful and wary of these amazing creatures.

## Texas Horned Lizard

The Texas horned lizard is a small, flat-bodied, fierce-looking reptile named for the small horns that crown their heads. Though commonly referred to as "horny toads", this threatened species is actually a reptile. They eat thousands of ants per day. Their best defense against predators is to hide in plain sight, using their distinct coloration to blend into their surroundings, flattening or inflating their bodies as needed.



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SOURCE:  
"Texas Nature Trackers: Target Species"  
Texas Parks and Wildlife Department, tpwd.texas.gov



PRABHU

## Nine-banded Armadillo

Armadillo means "little armored one" in Spanish. The name refers to the bony plates that cover their bodies. These mammals can hold their breath for up to six minutes, and will sink to the bottom of a waterway and walk across it. When startled, they can jump up to five feet in the air. Armadillos carry leprosy, a disease which can lead to disfigurement and nerve damage, so don't try to touch these shy creatures.

## Golden-cheeked Warbler

Golden-cheeked warblers come from Mexico and Central America to Central Texas to build their nests, where the warblers' chicks hatch and grow strong during the pleasant spring months. They are an endangered species, and do not nest along the 45SW corridor.



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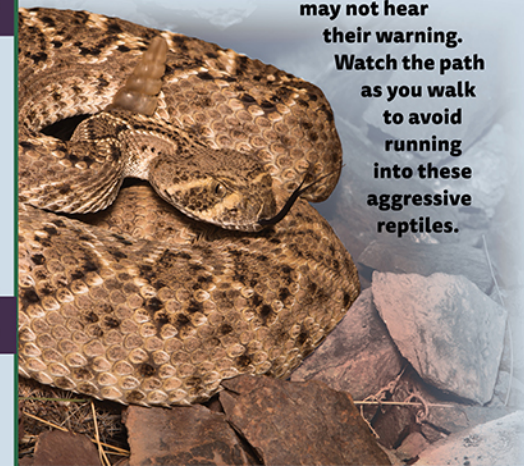
## Western Diamondback Rattlesnake



ANDREW DUBOIS PHOTOS / CC BY NC 2.0

The western diamondback rattlesnake is a heavy bodied pit viper with a triangular shaped head. They have a loreal pit located behind each nostril that detects even the slightest temperature differences. This super-sense helps them prey on small animals. This snake can be three to seven feet long and may live up to 20 years. Their distinctive rattles can shake 60 times per second and are made of keratin, the same material that makes up our hair and nails.

**Please note that some snakes have silenced rattles, so you may not hear their warning. Watch the path as you walk to avoid running into these aggressive reptiles.**



## Did You Know?

The Texas horned lizard will shoot their enemies with a stream of blood from their eyelid as a defense mechanism.



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# The Butterfly Social

Texas is home to more than 400 species of these vibrant insects — the most of any state



## The Monarch

The only known butterfly to make a two-way migration, the monarch travels up to 3,000 miles each year between Canada and Mexico to escape the northern winter. In the spring and fall, the butterflies funnel through Texas, which is a crucial stop in their journey.



## Black Swallowtail

This butterfly is a mimic — the underside of the black swallowtail's wings look like the pipevine swallowtail, known by predators to be bad-tasting and poisonous. They eat common herbs like dill and fennel.



## Cloudless Sulfur

With a wingspan over 3 inches, these butterflies are a vibrant yellow and the females have black markings. They visit flowers such as thistle and morning glory.



## Common Buckeye

This butterfly has distinct eyespots on its brown wings, which span about 1.5-2.5 inches. They are a part of the brush-foot family and use only four of their six legs to walk.



## Did You Know?

A group of butterflies is known as a "kaleidoscope." They can also be referred to as a "flutter" or a "swarm."

## Plants for Pollinators

Help the monarchs and other butterflies by planting native Texas milkweeds and other nectar plants like those above. You can find these and other plants at the Lady Bird Johnson Wildflower Center.



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SOURCES:  
 "Field Guide to Common Texas Insects." Texas A&M University, 2019. [texasinsects.tamu.edu](http://texasinsects.tamu.edu).  
 Lady Bird Johnson Wildflower Center, The University of Texas at Austin. [wildflower.org](http://wildflower.org).  
 LeBlanc, Pam. "Help Monarchs by Planting Milkweed — but Make Sure It's Native." Austin American Statesman, 16 Aug. 2016, pp. 1-2.  
 "Monarch Butterfly." Texas Nature Trackers, Texas Parks & Wildlife Department, 2019. [tpwd.texas.gov/huntwild/wild/](http://tpwd.texas.gov/huntwild/wild/).  
 "Pollinators of Texas." U.S. Fish & Wildlife Service, 2019. [fws.gov/southwest](http://fws.gov/southwest).





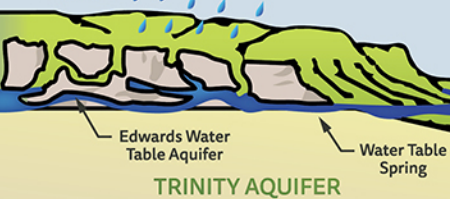
# Edwards Aquifer

What is the Edwards Aquifer  
- and how does it work?

## Did You Know?

The Barton Springs segment provides water to more than 60,000 people and several important springs, supports critical habitat for endangered species, and supplies water to the Colorado River.

### CONTRIBUTING ZONE



The Edwards Aquifer overlies the Trinity Aquifer in the Balcones Fault Zone but is exposed at the surface in the Hill Country. Water that does not directly recharge the Trinity Aquifer runs off and contributes recharge to the Edwards Aquifer.

### Relative position of Bear Creek

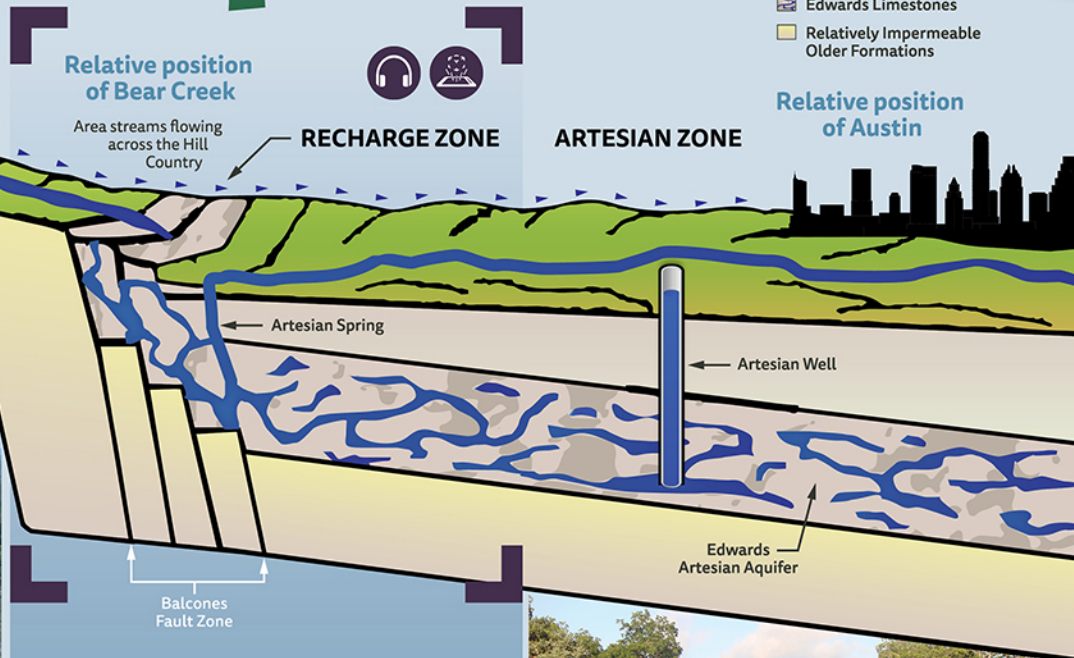
Area streams flowing across the Hill Country

### RECHARGE ZONE

### ARTESIAN ZONE

- Land Surface
- Relatively Impermeable Younger Formations
- Edwards Limestones
- Relatively Impermeable Older Formations

### Relative position of Austin



## The Contributing Zone

The Contributing Zone occurs on the Edwards Plateau, also called the Texas Hill Country. The contributing zone is the drainage area or watershed where the land surface "catches" water from rainfall and flows to the recharge zone. Rainwater flows over land in the Hill Country into creeks that run east toward Austin. This is called the contributing zone since it "contributes" water to the aquifer.

BILLY HATHORN / CC BY 3.0

## The Recharge Zone

You may have seen the signs along roadways saying that you are now "Entering Edwards Aquifer Environmentally Sensitive Recharge Zone". The Recharge Zone refers to the area where water enters an underground aquifer through faults, fractures and holes, or direct absorption.

## The Artesian Zone

Recharge water works its way down into the Artesian Zone and puts pressure on the water that is already present deeper down. The hydraulic pressure then forces water up through wells and faults to the surface.

### SOURCES

- Barton Springs Edwards Aquifer Conservation district, bseacd.org
- "The Fragile World of Austin Underground." Watershed Protection, 2012. City of Austin, austin.texas.gov
- "Hydrogeology of the Edwards Aquifer." The Edwards Aquifer Website, SoLima, edwardsaquifer.net
- Slade, Raymond M., Jr., et al. "Hydrology and water quality of the Edwards Aquifer associated with Barton Springs in the Austin area, Texas." USGS Science for a Changing World, U.S. Geological Survey, pubs.erdc.usg.gov
- "Travis County Aquifers." Travis County, Texas, traviscoountytx.gov



TODD DWYER / CC BY-SA 2.0



# Prehistoric Creatures of the Sea

The Texas of today looks very different from the landscape that existed when large, prehistoric beasts roamed the Earth. At that time, many water-dwelling creatures inhabited the shallow sea where the Hill Country now sits.

## Did You Know?

The Mosasaur could open its jaw as wide as 3 feet!

## Ammonites

Ammonites are an extinct type of mollusk. They swam by moving up and down underwater, controlling gases in their coils like a pilot controls a hot air balloon.



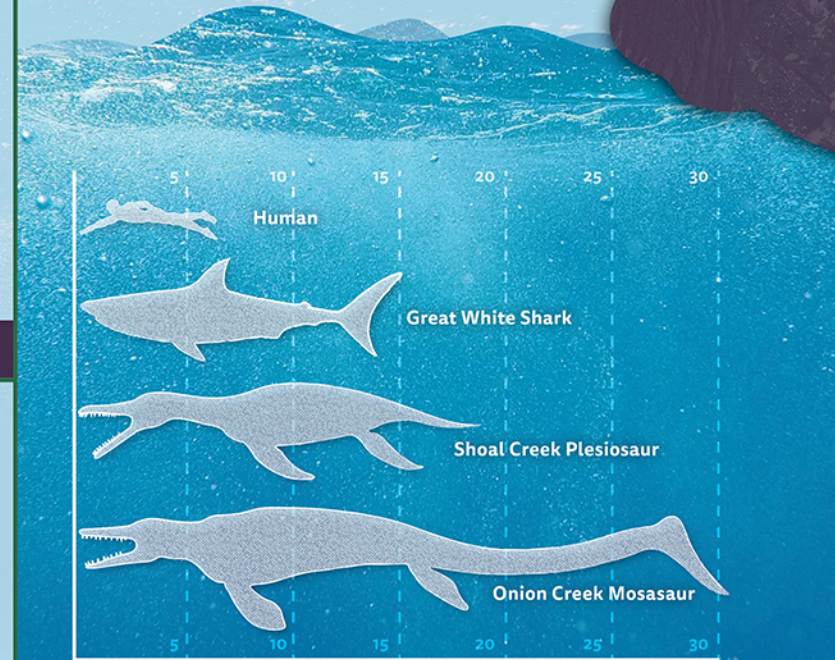
SHUTTERSTOCK



DMITRY BOGDANOV / CC BY 3.0

## The Onion Creek Mosasaur

The Onion Creek Mosasaur was among the largest species of mosasaurs and went extinct 65 million years ago. This 30-foot-long marine reptile was the top predator of its time. Mosasaurs inhabited the Onion Creek area, preying upon ammonites, fish and other marine reptiles. The skeleton is on display at the Texas Memorial Museum.



DIMENSIONS (FEET)

SOURCE: "Dino Pit Featured Animals," City of Austin, austin.texas.gov.



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## Osteopygis

The Zilker Park Osteopygis was a giant turtle from the Cretaceous period that grew to about five feet in length and weighed several hundred pounds. The specimen on display at the Texas Memorial Museum was discovered by a hiker in Zilker Park.



DMITRY BOGDANOV / CC BY 3.0

## The Shoal Creek Plesiosaur

The fossilized remains of an 18-foot plesiosaur were discovered by a dentist hiking along Shoal Creek in 1990. Very different from mosasaurs, the plesiosaur was a giant aquatic reptile that swam much like a turtle, "flying" through the water using flippers. They ate fish with their long, sharp teeth, and were a dominant predator of the time.



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# What's Taking Root

Following the establishment of European settlements, over-grazing livestock transformed the Central Texas landscape from rich grassland to mostly brush within the span of a century. The native and adapted plants that remain in the area are hearty and valuable contributors to the ecosystem.

## Turk's Cap

The Turk's cap flowers at the end of summer and early fall. Adapted to the sometimes-droughty climate of this area, hummingbirds, butterflies and birds are all attracted to this well-loved wildflower plant.



## Ashe Juniper

Also known as cedar, Ashe juniper is a slow growing tree that populates much of the Texas Hill Country. Many people in the region suffer from "cedar fever," an allergic reaction to its pollen. The bark of the tree is used by the endangered golden-cheeked warbler to build its nests.



## Red Yucca

Native to Central Texas, the red yucca is a hearty plant that tolerates both heat and cold well. It is a favorite of hummingbirds, who feed on their red flowers.

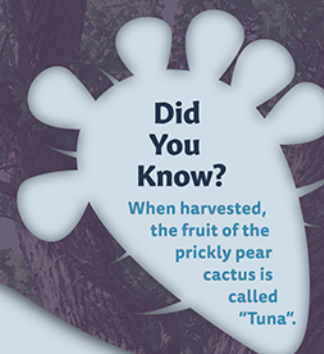
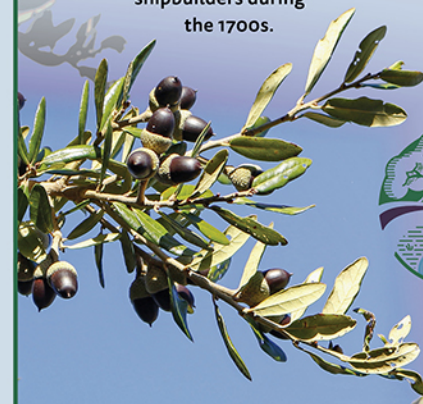
## Texas Mountain-laurel

The fragrant Texas mountain-laurel bears beautiful purple flowers when in bloom as well as poisonous red seeds that were valued by the indigenous population for ornamental and ceremonial use.



## Live Oak

The live oak is increasingly scarce in this part of Texas. Its beautiful wood was prized by shipbuilders during the 1700s.



### Did You Know?

When harvested, the fruit of the prickly pear cactus is called "Tuna".

## Prickly Pear Cactus

The Prickly Pear Cactus is the official state plant of Texas. It has long been a source of nutrition for indigenous peoples and cattle. Like most cacti, it is highly adaptable and prospers in harsh climates.

#### SOURCES:

Simpson, Benny. "Native Shrubs." [oggiehorticulture.tamu.edu](http://oggiehorticulture.tamu.edu), [agpiehorticulture.tamu.edu/ornamentals/nativeshrubs/indexcommon.htm](http://agpiehorticulture.tamu.edu/ornamentals/nativeshrubs/indexcommon.htm).

"Trees of Texas." [TexasTreeID.TexasA&MForestService.texasatreeid.tamu.edu](http://TexasTreeID.TexasA&MForestService.texasatreeid.tamu.edu).



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