

# Paving the Way for STEM in History Museums

TEXAS  
HISTORICAL  
COMMISSION  
REAL PLACES TELLING REAL STORIES

BEYOND  
THE  
ROAD  
TxDOT

BULLOCK  
TEXAS  
STATE HISTORY  
MUSEUM

# Becoming a Habitat for Teachers: Designing Educator Workshops with STEM in Mind

## Activity Session

# Discussion Group Guidelines

- Use “I” statements and speak only from your own experience
- Assume good intent and be aware of your impact
- Maintain confidentiality—what is said here stays here, what is learned here leaves here
- Share the air—leave room for everyone to speak and don’t interrupt
- Seek first to understand—ask questions to clarify, not to debate
- Participation may be verbal, but it is also deep listening
- Challenge yourself and engage with discomfort
- Be willing to make a mistake and be understanding when others make them
- Seek to learn from differences—everyone’s unique backgrounds give us different life experiences

# Teacher Program Planning Template


- [www.thc.texas.gov/museumSTEM](http://www.thc.texas.gov/museumSTEM)

# Biology and Environment: Bat Habitats



# Biology and Environment: Bat Habitats

Beyond the Road: Bats and Bridges

A Story Map    **BEYOND THE ROAD**

[Our Story](#) [Map of Bat Bridges](#) [Bat Research](#)

 An Environmental Affairs Application 



## TxDOT Partners with Texas Tech to Study Bats in Texas

Scroll down to learn more.

Bats are big in Texas.

They each may have a wingspan of only a few inches, but their collective impact is almost as big as Texas itself. More than 100 million bats take to the skies every night, when each one can

# Biology and Environment: Bat Habitats

## 32 Bat Species in Texas

Arranged regionally. Color codes correspond to map.

- TRANS-PECOS MOUNTAINS
- HIGH PLAINS
- ROLLING PLAINS
- EDWARDS PLATEAU
- SOUTH TEXAS PLAINS
- CROSS TIMBERS AND PRAIRIES
- BLACKLAND PRAIRIES
- POST OAK SAVANNAH
- PINEY WOODS
- GULF PRAIRIES AND MARSHES



**Mexican Long-nosed Bat** ●  
(endangered)  
*(Leptonycteris nivalis)*  
A medium-size bat with short ears and no tail. This Mexican species enters Texas in the Big Bend Region. This bat is listed as endangered by the Texas Parks and Wildlife Department, although the species is vibrant throughout much of Mexico.



**California Myotis** ●  
*(Myotis californicus)*  
A small bat with short limbs and a relatively long tail and ears. This is a western species, found in the Trans-Pecos region of Texas.



**Fringed Myotis** ●  
*(Myotis thysanodes)*  
A large bat with large ears featuring short stiff hairs. The species is migratory and can be found in the Trans-Pecos region of Texas during the summertime.



**Long-legged Myotis** ●  
*(Myotis volans)*  
A large bat with a relatively long tail, short ears, and large feet. This species occurs in the central range of the Trans-Pecos region of Texas.



**Western Red Bat** ●  
*(Lasiurus blossevilli)*  
A medium-size bat with a rusty red to brown coloration. Although this species is found throughout the far western areas of the United States and south into Mexico, only one specimen has been found in Texas in Presidio County.



**Townsend's Big-eared Bat** ●●●●  
*(Corynorhinus townsendii)*  
A medium-size bat with extremely large, flexible ears and a noticeable outgrowth on each side of its snout. This bat's coloration is a nearly uniform brown with slightly paler underparts. The bat can be found in the western half of the state.



**Pocketed Free-tailed Bat** ●  
*(Nyctinomops femorosaccus)*  
A medium-size bat similar in appearance to the Brazilian free-tailed, although with narrower features. This bat is only known from specimens retrieved from Big Bend National Park.



**Spotted Bat (threatened)** ●  
*(Euderma maculatum)*  
A large bat with extremely large ears, featuring a black coloration and three large white spots (one on each shoulder and one on the rump). This species is uncommon but widespread in semiarid regions of the western United States, and is only known in



**Yuma Myotis** ●  
*(Myotis yumanensis)*  
A small bat with relatively large feet. Their coloration is dull and pinkish, although it becomes darker with age, and features a nearly white underbelly. In Texas, this species is found in the southern Trans-Pecos region eastward to Val Verde County.



**Western Bonneted Bat** ●  
*(Eumops perotis)*  
A free-tailed bat similar to the Brazilian free-tailed species but nearly seven times as large. This species features a brown or gray brown coloration and is restricted to Presidio, Brewster and Val Verde counties.



**Pallid Bat** ●●●●  
*(Antrozous pallidus)*  
A large yellowish-brown bat with large ears and feet. This species of bat is a common resident across the western half of the state.



**Western Small-footed Myotis**  
*(Myotis ciliolabrum)* ●●  
A small bat with small feet, short ears, and a relatively long tail. This species is primarily found in the Trans-Pecos region of Texas, although multiple records indicate a small population occurring in the High Plains of the Panhandle in Armstrong and



# Resources for this Activity

- Teacher Program Planning Template: [www.thc.texas.gov/museumSTEM](http://www.thc.texas.gov/museumSTEM)
- Beyond the Road: Bats and Bridges: <https://arcg.is/HyObW>
- Texas Bats and Bridges; A Mutually Beneficial Relationship video:  
[https://www.youtube.com/watch?v=L91Cr7t-dmg&ab\\_channel=TxDOT](https://www.youtube.com/watch?v=L91Cr7t-dmg&ab_channel=TxDOT)
- Texas Bats poster: <https://ftp.txdot.gov/pub/txdot-info/library/pubs/kids/bats.pdf>
- Endangered Species poster: <https://ftp.txdot.gov/pub/txdot-info/library/pubs/kids/endangr.pdf>



# Group Activity

We're going to put you into randomly selected breakout rooms to facilitate small group discussion for today's activity.

Facilitators from the Bullock Museum and the Texas Historical Commission will be jumping in and out of the breakout rooms to see how you're doing and answer any questions.

If you have questions when one of us is not in your breakout room, select "Ask for Help" in your control bar and one of us will quickly join you.

We'll communicate logistical details like how much time you have left via announcements that will appear at the top of your breakout room screen.

# Group Activity

Take just a few minutes to look through the Teacher Programs Planning Template and some of the suggested bat resources.

Decide whose institution you want to use as example (or create your own!). Work through the program planning template (note, you may need to go out of order. Fill things out as they come to mind).

You won't have time to fully go through the TxDOT Resources, or to fill out the whole template. The goal is to get an overall vision for the program you're planning, and start to think through the details.

By the end of your discussion time, have three things to share out with the full group:

- What type of program did you plan?
- Tell us about some of the details you were able to think through.
- Why did you make those choices?