

Where do Bats like to Roost?

Bats' use of bridges as roosts first came to TxDOT's attention in 1980 when a colony of Mexican free-tail bats moved into the crevices beneath the newly reconstructed Congress Avenue Bridge in Austin. At the time, there were many unanswered questions about the bats' impact on the structural integrity of the bridge and potential health risks the bats presented.

A joint study by the Texas Department of Transportation (TxDOT) and Bat Conservation International, Inc. (BCI) examined where and under what circumstances bats prefer to roost and raise their young. The study found that bridges and culverts are among the favored man-made roosts for a number of bat species. Specifically, the study found that:

- Bats will roost, often in large colonies, under concrete bridges, and occasionally under timber or metal bridges.
- Bats prefer roosting in covered crevices at least 12 inches deep and 0.75 to 1 inch wide, but may roost in crevices as wide as 1.5 inches and 4 to 8 inches deep.
- Bats prefer bridges that have little or no vegetation growing under the bridge.
- Bats will roost in long culverts, such as those found beneath divided highways, especially those containing wall or ceiling cavities.
- Bats will roost in covered vertical drain pipes in bridges or culverts.

With the information learned from this study, TxDOT discovered the beneficial aspects of bats. TxDOT has developed a program to make additional bridges and culverts more suitable for bat roosting and nurseries.



A Southern yellow bat roosting under a palm frond.
Photo by Merlin Tuttle.



Produced by the Environmental Affairs Division



Where to see bats fly at dusk

Bats normally emerge from their roosts around sundown. Several large colonies of Mexican free-tail bats are in residence in Texas bridges and culverts from mid-March through the end of October. The following are some of the better bat viewing locations around the state:

City	Location
Austin	Congress Avenue Bridge over Town Lake
Riviera	U.S. 77 bridge over Los Olmos Creek
Round Rock	I-35 bridge over McNeil Road
Salado (Late August only)	I-35 culvert near intersection of FM 2484, exit 286 (parking area on the east side frontage road)
San Angelo	Foster Street bridge over Loop 306



Photos for cover collage by Merlin Tuttle. Thanks to Bat Conservation International (BCI) and Mark Bloschock, Supervising Bridge Engineer of TxDOT's Design Division.

Recycled paper
Soy based ink

Bats 'N' Bridges



Texas Department of Transportation

A lack of information about bats over the ages has lead to many misconceptions that are still with us. Bats were considered "evil" creatures that had no beneficial role for people. Bats were thought to be blind, likely to become tangled in people's hair and capable of biting without provocation — none of which proved to be true. On the contrary, we now know that bats play an important role in our ecosystem and play a beneficial part in agriculture.

Texas Bats

Texas is home to 33 species of bats, more than any other state. Whether we know it or not, Texas bats benefit us in many ways. The Mexican free-tail bat plays an essential role in controlling insect pest populations that damage crops and irritate people. On a typical summer night, the bats of the Congress Avenue Bridge in Austin eat over 20,000 pounds of insects! The pollen-feeding Mexican long-tongued bat plays a vital role in the pollination of desert cacti. The Southern yellow bat, which prefers to roost under palm tree fronds in the Rio Grande Valley, also consumes insects.

Many bat species' populations are declining due to human recreation, land development practices, and the loss of traditional bat roosting and nursery sites, such as caves. Bats also have the slowest reproductive rate for mammals their size, usually producing only one offspring per female each year. Some Texas species, such as the Mexican long-tongued bat, have declined in numbers to the point that they have been placed on the endangered species list.



Checking a wooden bridge for evidence of bats. Photo by Annika Nicklaus.

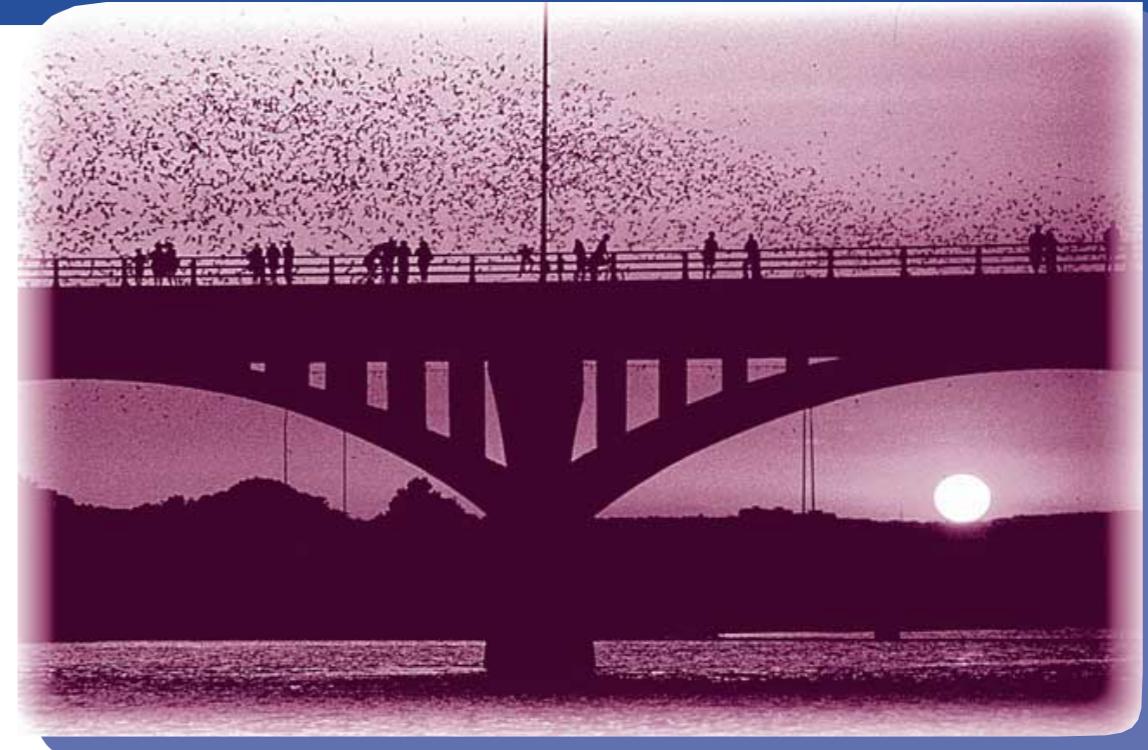
Armed with information on bats' roosting and nursery preferences, TxDOT has embarked on a program to design and retrofit bridges and culverts, and to modify palm tree pruning practices in the Rio Grande Valley with bat roosts in mind, where it is appropriate and economical.

TxDOT's Bridge Design Section provides assistance to district staff in evaluating and choosing designs for bridges and culverts that can double as bat roosts and nurseries. In areas where the presence of bats is not desirable, TxDOT has humanely excluded bats from their bridge roosts by waiting until winter months when the bats have migrated south to make minor changes to the bridges, structures, and other habitats that will make them unattractive to bat colonies.

Doesn't this Damage Bridges, Culverts and Threaten Public Health?

In a word, no. Studies indicate that even where there are large colonies of bats, no damage occurs during the life of the structure that is attributable to the bats. Studies conducted by the Lower Colorado River Authority and the City of Austin at the Congress Avenue Bridge indicate a negligible impact on water quality from bats roosting on bridges that cross waterways.

While all mammals can contract rabies, fewer than one half of one percent of bats do, and these typically bite only in self-defense. The threat of rabies is virtually non-existent for those people who never handle wildlife or any unfamiliar animals, and who vaccinate all family pets.



Mexican freetail bats emerge at sundown from beneath Austin's Congress Avenue Bridge.
Photo by Karen Marks

TxDOT is Committed to the Environment

TxDOT's bat program is just one aspect of TxDOT's efforts to be an environmentally sensitive transportation agency. To learn more about TxDOT's environmental program, visit our website at: www.dot.state.tx.us. To find out more about bats, visit the website of BCI at: www.batcon.org.



Bat Conservation International's Brian Keeley observes Cave bats roosting inside a TxDOT highway drainage culvert in South Texas.
Photo by Annika Nicklaus.