

What factors threaten bat colonies today?

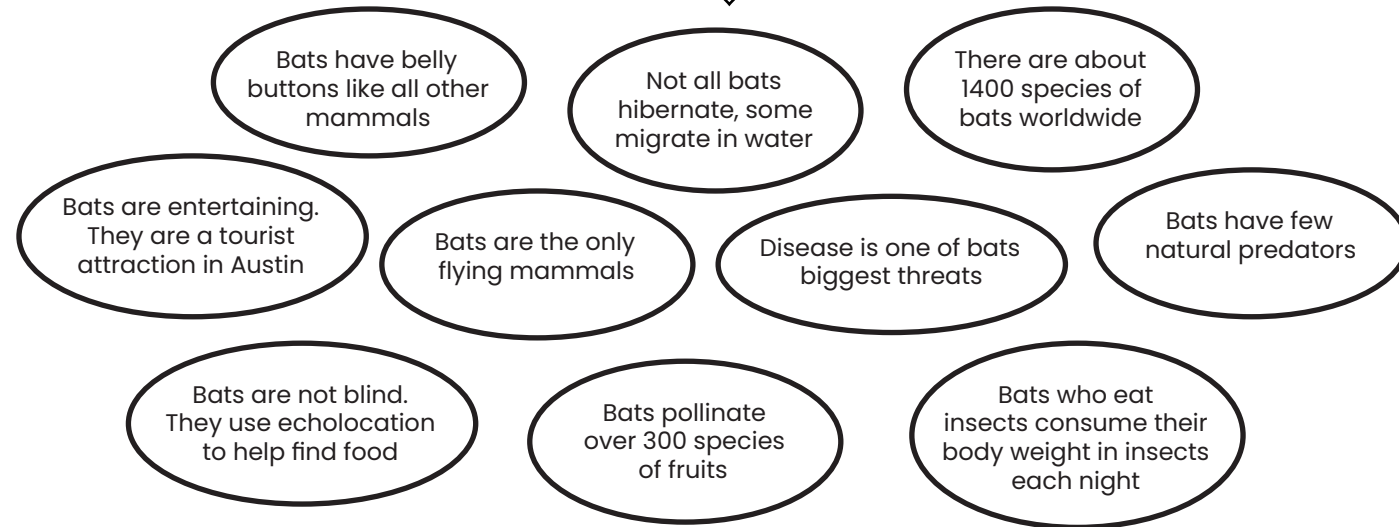
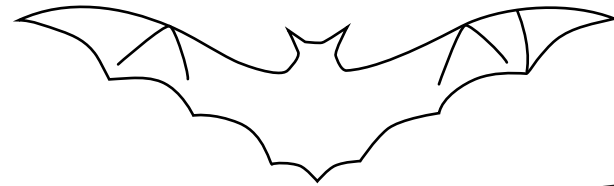
Why is this a problem to humans and the ecosystems where the bats live?



Bats Need Our Help!

- The poster shows a big brown bat sleeping on a tree trunk. Big brown bats are found in almost all habitats, from deserts, to mountains, to meadows and even in cities. They are insectivores, preferring to eat beetles and other flying insects like moths, which they capture while in flight.
- Use the fun facts below to discuss with a partner how bats are important to an ecosystem.

Interesting Bat Facts



- Many bat species face a variety of threats to their survival. Research some of the factors that threaten bat colonies and list them below. Why could this be a problem to the ecosystems where the bats live?

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Image Information: The poster image shows a big brown bat (*Eptesicus fuscus*) that came out of hibernation during a winter warm spell in East, TN. Big brown bats have copper-colored fur, small black ears, and black wing membranes. They have a wing span of around 13 inches.

Question: What factors threaten bat colonies today? Why is this a problem to humans and the ecosystems where the bats live?

Possible Student Answers: Student research should discover that more than half of the bat species in the United States are in severe decline. The following factors that threaten bats are: white-nose syndrome (a fungal infection), habitat loss, climate change, and use of pesticides. This is a problem to humans and local ecosystems because bats consume large quantities of harmful insects, like mosquitos and other agricultural pests. They are also the primary pollinator for certain fruits, like bananas, agave, and certain cacti.

Interesting Info: Big brown bats are very hardy and found throughout the Western hemisphere. While they can live up to 20 years, but most die within the first year due to lack of body fat reserves necessary for hibernation. are mostly social animals living in colonies ranging in size from a few individuals to hundreds. Being nocturnal, they roost in sheltered areas like tree cavities, tunnels, rock crevices or homes during the day and leave at night to forage.

Support the Phenomena:

NGSS: Science and Engineering Practice # 7: Engaging in Argument from Evidence: In K-5, students **construct an argument with evidence to support a claim**. In 6-12, students **construct and present an argument, supported by evidence** about the impact of pesticides on their local bat population and **offer alternative solutions** for controlling the pests.

- In K-2, have students use the fun facts and their own research/readings to learn about why bats are beneficial and have them use their information to explain how bats help people.
- In 3-5, have students look up additional information on bats and the factors that threaten them. Have them generate a list of innovative ideas that are currently being employed to protect the bats from the hazards that impact them. Using the evidence collected they create a PSA to promote public awareness on protecting bat populations.
- In 6-8, students research the use of pesticides to control mosquito/pest populations in their communities and its effect on the local bat colonies. Students present evidence to support a claim as to whether the benefit of using pesticides outweighs their harmful effects on bats.
- In 9-12, students research the current hazards to bat colonies in the United States and produce a position paper either for or against the use of pesticides in controlling mosquitoes in their community. They should cite the research they gathered and present a cohesive, concise argument to support their claim, using the data they have collected.

More information: To learn more about saving bats, visit **Bat Conservation International**. Read the article, **13 Awesome Facts About Bats** from the U.S. Department of the Interior to learn more about bats in general.