



Bat Education Workshop: In Class Research Project

Objective: Understand the relationship between humans and bats related to current bat population decline

Key Terms: White-nose Syndrome, invasive species, bats

Background:

Bats make up one fourth of all mammal species. They are important insect-controllers, pollinators, and seed dispersers throughout the world. However, bat populations are declining rapidly, particularly in North America among insect-eating bats. Since the first outbreak in 2006, White-nose Syndrome (WNS) has killed an estimated 6.7 million bats across North America. **White-nose Syndrome** is caused by an invasive species of fungus called *Pseudogymnoascus destructans* and brought over from Europe by tourists. It is called White-nose Syndrome because the fungus grows around the bats' noses and wings, irritating their skin and causing them to wake too frequently during hibernation. Insects are not out in the winter, so that bats that wake before spring die from starvation. Watch [this](#) video to learn more!

Plants, animals and pathogens that have lived together in different parts of the world know how to share space so that they can all survive. These kinds of plants, animals and pathogens are called "native species." Sometimes, plants, animals and pathogens that live in some parts of the world find their way to other parts of the world, usually from people bringing them there by mistake. Those are called "**invasive species**." When invasive species come to a new place, they can cause trouble for what already lives there. Often, invasive species overpower the native species and take food away from the native species. The fungus that causes White-nose Syndrome is considered an invasive species. In Europe where it is from, it does not cause problems for bats. In North America, however, it is highly destructive. For more information on invasive species, visit [here](#).

Your challenge: investigate the threat of invasive species, predict what will happen, and make an action plan.

Step 1. Investigate—What's Going On?

Questions to think about:

- Why is White-nose Syndrome a threat to bats?
- Where did it come from? Check [Here](#).
- Did humans cause it?

- Is White-nose Syndrome in your state? Check [Here](#). Find your state on the map and record whether bats in your state are affected by WNS. If yes, what year was WNS first detected?
- Is this threat like anything else? How? Look up other invasive species! Can you find another fungus? [Hint](#)
- Discuss the ecological importance of bats in North America and around the world. What fruit, and other plants important to humans, are pollinated by bats? What would be the effect on insect populations if bats disappeared? Can you draw a graph that illustrates this relationship?

Videos:

[YouTube: White-nose Syndrome](#)

Books:

[The Case of the Vanishing Little Brown Bats](#)

Step 2. Predict—What Could Happen?

Background:

Bats play an important role in our ecosystems. Insectivorous bats eat annoying mosquitos but also farm pests that eat our crops and insects that spread disease to humans or livestock. One bat can eat thousands of bugs every night! Farmers don't need to use as many pesticides if bat populations are healthy in their area. Many bats help plants to reproduce by pollinating. Their furry faces collect pollen as they sip flower nectar. They carry that pollen from flower to flower as they forage for nectar each night. Fruit-eating bats drop seeds from their mouth or in their droppings as they fly. These seed dispersing bats help to regrow forests by planting seeds wherever they fly. The 1300+ bat species of the world fill hundreds of niches where they either help control bug populations, pollinate flowers and fruit, or spread seeds to grow new trees. Bats are crucial to our ecology and economy. Learn more [here](#).

Bats are sensitive to disturbances in their roosting or foraging (finding food) environments. Businesses like logging companies and highway builders are not allowed to work during certain times or throughout certain areas if there are endangered species present. They lose money and jobs so sometimes protecting bats is not so easy.

Now that you know more about this threat, what do you expect will happen next? Take a look at both of these possibilities:

- What will happen to bats if White-nose Syndrome continues?
- What will happen to the local businesses that are involved if laws change to protect bats in certain areas?
- With your future predictions, what do you think the government, businesses, conservationists and individuals can or should do to protect bats? If your group

doesn't agree on a plan, hold a short debate. Take turns and discuss both sides of the issue. Is there a way to cooperate that helps bats and business?

3. Share—Teach Others!

How would you convince people that bats are important? Make an action plan! Write a paragraph about what you would do for bats if *you* were president. Draw and caption a picture of what you learned or create a video and upload it [here](#). You'll help teach others that bats are important and worth protecting!

4. Be a Friend to Bats!

You are now a bat conservationist! Be a friend to bats all year long by doing more online projects, available [here](#). Other things you can do to help bats...

- Plant a native garden! Planting native flowers and plants in your backyard gives food for bats to feed on. Leave off the pesticides, though, if you want to serve healthy food to your backyard bats!
- Ask a parent to download [this garden guide](#) to find out which bat-friendly plants are native to your state. Do you already have these plants in your yard?
- Build a bat house! Find instructions [here](#) to build a safe, dry, warm place for bats to raise their young.

Be sure to visit your local national park this summer—your teacher can download free passes [here](#) so you can take a whole car full of people. And visit www.getoutdoors.org to see if there's a fun day planned outside near you on June 11.

This program is made possible with support from the U.S. Fish and Wildlife Service and the Organization for Bat Conservation. For more information, visit:

www.whitenosesyndrome.org
www.batconservation.org
www.fws.gov