

Virtual Ranger Program: Bats

National Park Service
U.S. Department of the Interior



Shenandoah National Park

Summary	Students will use this worksheet to follow along with the virtual ranger program about bats. This will guide students in various learning methods to understand the importance of bats to the ecosystem in Shenandoah National Park and their threats.
Suggested Grade Levels	3-5
Objectives	Understand the importance of bats in the ecosystem Investigate the potential effects of population decline due to White-Nose Syndrome and what people can do to help bats

Virginia State Standards	<p><i>Strand: Living Systems and Processes</i></p> <p>3.4 The student will investigate and understand that adaptations allow organisms to satisfy life needs and respond to the environment. Key ideas include a) populations may adapt over time.</p> <p>3.5 The student will investigate and understand that aquatic and terrestrial ecosystems support a diversity of organisms. Key ideas include b) relationships exist among organisms in an ecosystem.</p> <p>4.3 The student will investigate and understand that organisms, including humans, interact with one another and with the nonliving components in the ecosystem. Key ideas include b) food webs show the flow of energy within an ecosystem, c) changes in an organism's niche and habitat may occur at various stages in its life cycle.</p> <p><i>Strand: Earth Resources</i></p> <p>3.8 The student will investigate and understand that natural events and humans influence ecosystems. Key ideas include a) human activity affects the quality of air, water, and habitats.</p> <p>4.8 The student will investigate and understand that Virginia has important natural resources. Key resources include b) plants and animals; c) minerals, rocks, and ores; and d) forests, soil, and land.</p>
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Vocabulary	<p>Endangered species – a species whose numbers are so few, or are declining so quickly, that the animal, plant, or other organism may soon become extinct. Endangered species are protected under national or international law.</p> <p>Guano – feces, excrement or poop from a bat</p> <p>Hibernaculum – a place where bats hibernate over winter</p> <p>Hibernation – the condition of an animal or plant that spends the winter in a dormant state</p> <p>Insectivore – an animal that eats only or mainly insects</p> <p>Niche – the role an organism plays in the environment</p> <p>Predator – an animal that eats other animals</p> <p>Prey – an animal that is eaten by other animals</p>
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Materials	YouTube video: Shenandoah NPS / Virtual Ranger Program: <i>Bats</i> Link: Virtual Ranger Program: Bats Duration: approximately 21 minutes
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**Shenandoah National Park
Virtual Ranger Program: Bats
Student Worksheet**

Student Name:

Date:

What do you think of when you think of bats?

Bats in Shenandoah National Park are which of the following in the food chain? Circle the correct answer.

A. Omnivores

B. Insectivores

C. Herbivores

How many bat species are found in Shenandoah National Park? Circle the correct answer.

A. 2

D. 9

B. 5

E. 12

C. 7

F. 14

What adaptations that you learned about would you most like to have if you were a bat? Why?

Tell a story about the “day” in the life of a bat. Be sure to include what kind of bat, the niche of the bat, what it is doing, what weather may be like, what it needs to survive, adaptations it uses to survive, and what predators it may need to avoid. Be creative!

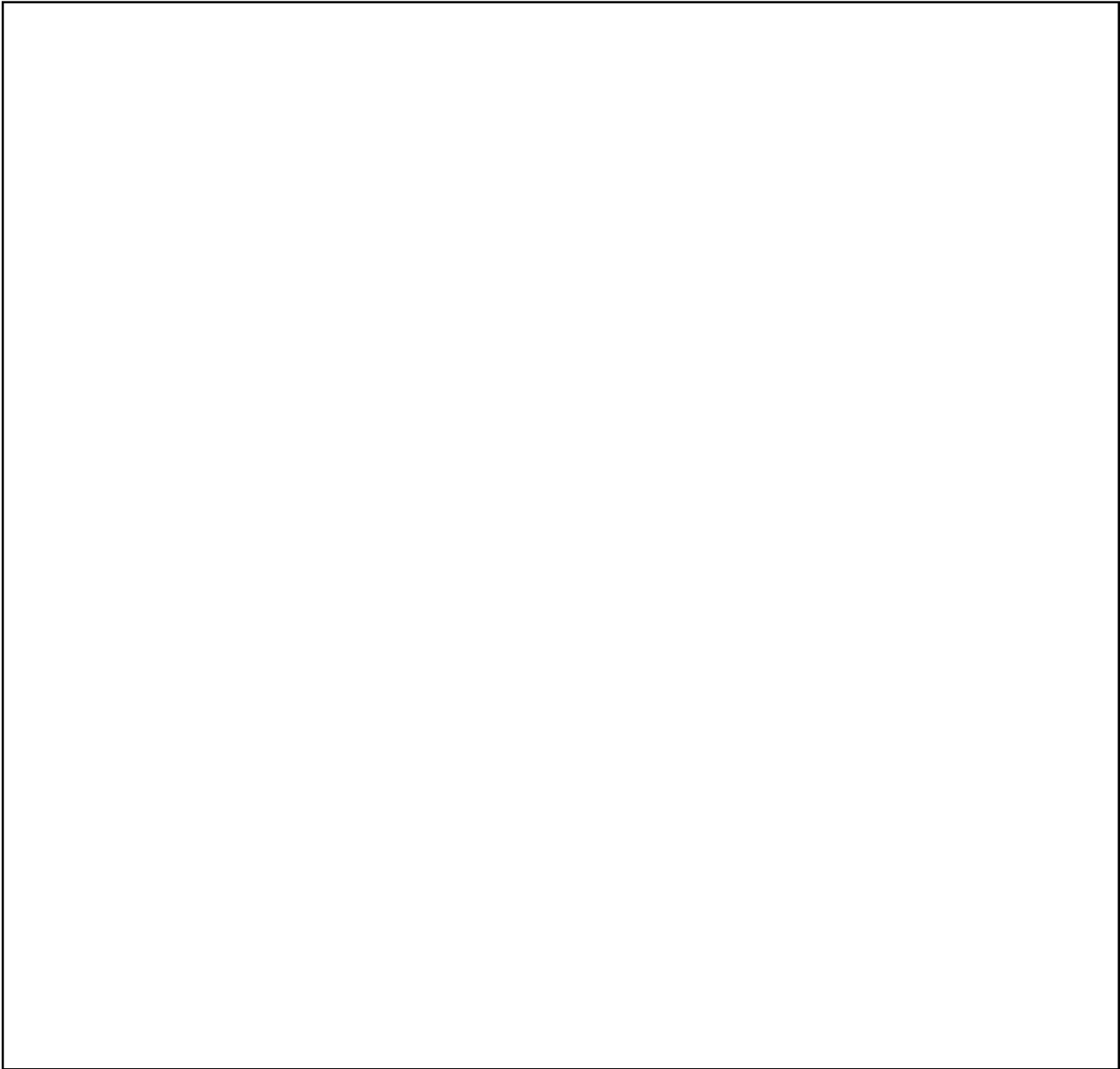
Why are bats important to the ecosystem?

White-Nose Syndrome is impacting almost all of the bat species in Shenandoah National Park by decreasing populations. What might happen if bats were to disappear from the ecosystem?

Why are bats important to people?

What can people do to protect bats?

Based on what you learned, draw a bat in its habitat in Shenandoah National Park. Include the living and non-living things as well as some of the basic needs of the bat.



What did you learn that surprised you?

**Shenandoah National Park
Virtual Ranger Program: Bats
Teacher Answer Guide**

Student Name:

Date:

What do you think of when you think of bats?

Bats in Shenandoah National Park are which of the following in the food chain? Circle the correct answer.

A. Omnivores

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C. Herbivores

How many bat species are found in Shenandoah National Park? Circle the correct answer.

A. 2

D. 9

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What adaptations that you learned about would you most like to have if you were a bat? Why?

Tell a story about the “day” in the life of a bat. Be sure to include what kind of bat, the niche of the bat, what it is doing, what weather may be like, what it needs to survive, adaptations it uses to survive, and what predators it may need to avoid. Be creative!

Why are bats important to the ecosystem?

Example: Bats are important because they are food for predators like owls and predators to insects; controlling their populations.

White-Nose Syndrome is impacting almost all of the bat species in Shenandoah National Park by decreasing populations. What might happen if bats were to disappear from the ecosystem?

Example: If bats were to disappear from the ecosystem, it may disrupt the balance. Some animals may not have enough food without bats to prey upon and the bug populations would grow dramatically.

Why are bats important to people?

Example: Bats help control pest populations, so crops can grow better without so many bugs eating them. They keep a balance in the ecosystem and are interesting to see and study.

Why can people do to help protect bats?

Example: People can leave bats alone when they see them roosting, especially in the winter when they are hibernating and need rest. People can also clean their boots to stop the spread of White-Nose Syndrome.

Based on what you learned, draw a bat in its habitat in Shenandoah National Park. Include the living and non-living things as well as some of the basic needs of the bat.



What did you learn that surprised you?